

**MARCH/FY06**

**WHITE SANDS MISSILE RANGE**  
New Mexico

**Army Defense Environmental  
Restoration Program  
Installation Action Plan**

Final 24 Jul 06

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The Defense Environmental Restoration Program (DERP) was established by Section 211 of the Superfund Amendments and Reauthorization act (SARA) of 1986. The Installation Restoration Program (IRP) and Military Munitions Response Program (MMRP) are sub-programs of the DERP. The IRP was established to cleanup environmentally contaminated sites belonging to Department of Defense (DOD) installations. Generally, sites contaminated prior to October 17, 1986 are eligible for funding under the DERP. (The date is the date the DERP was established via passage of the SARA.) Specific funding for DOD installations are directly appropriated to each DOD department (or component) into what are known as Component Environmental Restoration accounts. For the Army, this account is known as the ER,A.

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the IRP manager, US Army Environmental Center (USAEC), White Sands Missile Range (WSMR) and executing agencies, an IAP has been completed. The IAP is used to track requirements, schedules and budgets for all major Army installation restoration programs.

All site specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agencies contributed to the formulation and completion of this Installation Action Plan at the IAP Workshop held 28 Feb through 2 Mar 2006:

**Company/Installation/Branch**

Engineering & Environment, Inc for USAEC

IMA-SWRO

White Sands Missile Range EC

WTS, White Sands Missile Range

## Acronyms & Abbreviations

ACSIM	Assistant Chief of Staff for Installation Management
AEC	Army Environmental Center
AEDB-R	Army Environmental Database – Restoration (Formerly DSERTS)
AMRAD	Athena Measurement Radar
AOC	Area of Concern
ARL	Army Research Laboratory
ASI	Advanced Sciences Incorporated
AST	Aboveground Storage Tank
ATEC	Army Test and Evaluation Command
bgs	below ground surface
BRAC	Base Realignment and Closure
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
Ca F <sub>2</sub>	Calcium Fluoride (Fluorospar)
CBU	Cluster Bomb Unit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm	centimeters
CMI(C)	Corrective Measures Implementation (Construction)
CMI(O)	Corrective Measure Implementation (Operation)
CMS	Corrective Measures Study
CO <sub>2</sub>	Carbon Dioxide
Cr <sup>+3</sup> , Cr <sup>+6</sup>	Chromium (trivalent, hexavalent)
CS	Confirmatory Sampling
CSM	Conceptual Site Model
CTC	Cost to Complete
CTT	Closed, Transferring, or Transferred
cy	cubic yards
DD	Decision Document
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DES	Design
DMAHTC	Defense Mapping Agency Hydrographic/Topographic Center
DOD	Department of Defense
DOE	Department of Energy
DPG	Defense Planning Guidance
DRMO	Defense Reutilization and Marketing Office
DSERTS	Defense Site Environmental Restoration Tracking System
DTC	Developmental Test Command
DTRA	Defense Threat Reduction Agency
EC	Environmental Compliance Division
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
ER,A	Environmental Restoration, Army (formerly DERA)
ES	Environment and Safety Directorate

## Acronyms & Abbreviations

ESE	Environmental Science and Engineering
FFTA	Fire Fighting Training Area
ft	feet
FRA	Final Remedial Action
FUDS	Formerly Used Defense Sites
FY	Fiscal Year
GAC	Granular Activated Carbon
gal	gallons
GCL	Geoscience Consultants Ltd.
GEODSS	Ground-Based Electro-Optical Deep-Space Surveillance
GPRA	Government Performance and Results Act (of 1993)
GWM	Groundwater Monitoring
ha	hectares
HCF	HELSTF Cleaning Facility
HDPE	High Density Poly-Ethylene
HELSTF	High Energy Laser Systems Test Facility
HMW	HELSTF Monitoring Well
HSR	Human Systems Research
HSWA	Hazardous and Solid Waste Amendment
HTA	Hazardous Test Area
HWB	Hazardous Waste Bureau
HWSF	Hazardous Waste Storage Facility
IAP	Installation Action Plan
IGRS	In-Situ Gaseous Reduction
IMA-SWRO	Installation Management Agency – Southwest Regional Office
In	inch
IRA	Interim Remedial Action
IRFNA	Inhibited Red Fuming Nitric Acid
IRM	Interim Remedial Measures
IRP	Installation Restoration Program
IT	International Technology
k	thousand
kg	kilogram
km	kilometers
L	liters
lb	pounds
L.L.C.	Limited Liability Company
LPSC	Liquid Propellant Storage Area
LSTC	Laser System Test Center
LTM	Long Term Management
LTO	Long Term Operations
m	meter
MAR	Multi-Function Array Radar
MC	Munitions Constituents
MCL	Maximum Contaminant Level

## Acronyms & Abbreviations

MDL	Method Detection Limit
MeCl	Methylene Chloride
MEC	Munitions and Explosives of Concern
mg/g	microgram per gram
mg/kg	milligram per kilogram
mg/L	milligram per Liter
mi	mile
MLRS	Multiple Launch Rocket System
mm	millimeter
MMH	Monomethyl Hydrazine
MMRP	Military Munitions Response Program
MSC	Major Subordinate Command
NaOH	Sodium Hydroxide
NASA	National Aeronautics and Space Administration
NATO	North Atlantic Treaty Organization
NE	Not Evaluated
NED	Nuclear Effects Directorate
NERF	Nuclear Effects Reactor Facility
NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NMED	New Mexico Environment Department
NMGWQB	New Mexico Ground Water Quality Bureau
NMWQCC	New Mexico Water Quality Control Commission
NOD	Notice of Deficiency
NOP	North Oscura Peak
NPL	National Priorities List
NUC	Nuclear
OB/OD	Open Burning/Open Detonation
OE	Ordnance and Explosives
ORC	Oscura Range Center
PA	Preliminary Assessment
PCB	Polychlorinated Biphenyl
PCCP	Post-Closure Care Permit
PEO	Program Executive Officer
POL	Petroleum/Oil/Lubricants
ppm	parts per million
PRG	Preliminary Remediation Goals
RA	Remedial Action
RAB	Restoration Advisory Board
RA(C)	Remedial Action Construction
RACER	Remedial Action Cost Engineering & Requirements
RA(O)	Remedial Action Operations
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Removal

## Acronyms & Abbreviations

RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI/FS	Remedial Investigation/Feasibility Study
RIP	Remedy in Place
ROM	Restoration Oversight Manager
RRSE	Relative Risk Site Evaluation
S&A	Supervision & Administration
SARA	Superfund Amendments and Reauthorization Act
SI	Site Investigation
STP	Sewage Treatment Plant
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compounds
SVS	Soil Vapor Survey
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TDS	Total Dissolved Solids
TMDE	Test Measurement Diagnostic Equipment
TPH	Total Petroleum Hydrocarbons
TPH-D	Total Petroleum Hydrocarbons – Diesel
TRC	Technical Review Committee
TTF	Temperature Test Facility
UDMH	Unsymmetrical Dimethyl Hydrazine
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAG	United States Army Garrison
USASMDC	United States Army Space and Missile Defense Command
USGS	United States Geologic Survey
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VCM	Voluntary Corrective Measure
VEDRS	Vacuum Enhanced Diesel Recovery System
VOC	Volatile Organic Compounds
WSMR	White Sands Missile Range
WTS	White Sands Technical Services, L.L.C.
yd	yard

**Installation Locale:** White Sands Missile Range (WSMR) is located in south central New Mexico on over 2,048,000 acres of land in five counties: Dona Ana, Socorro, Lincoln, Otero, and Sierra (Figure 1-1). In addition to the main installation, there are two extension areas located adjacent to the north and west boundaries, and several joint-use land areas. These areas add over 3.8 million acres to the Range. WSMR is partially bordered on the east by Holloman Air Force Base and on the south by Fort Bliss Military Reservation. The Main Post area is approximately 45 miles (mi) north of El Paso, TX, and 20 miles east-northeast of Las Cruces, NM. U.S. Highway 70 crosses WSMR from east to west and serves as the main access to the Main Post area. There are no other populated areas located within the boundaries of the installation.

**Installation Mission:** WSMR provides Army, Navy, Air Force, DoD, and other customers with high quality services for experimentation, test, research, assessment, development, and training in support of the Nation at war.

**Lead Organization:**  
IMA-Southwest Regional Office

**Lead Executor:**  
WSMR Public Works Directorate – Environmental Compliance (EC)

**Regulatory Participation:**  
**Federal:** U.S. Environmental Protection Agency (EPA), Region VI, Dallas, TX  
**State:** New Mexico Environment Department (NMED), Santa Fe, NM

**National Priority List (NPL) Status:**  
Not on NPL

**Restoration Advisory Board (RAB)/Technical Review Committee/Technical Assistance for Public Participation Status:** White Sands Missile Range determined (in 1998) that insufficient public interest exists to establish a formal RAB. The next public interest survey is scheduled for 2006.

### ***Installation Program Summaries***

#### ***IRP***

Primary Contaminants of Concern: Cyanide, Diesel, Explosives, Metals, Pesticides, POLs, SVOCs, TPH, VOCs

Affected Media of Concern: Soil, Groundwater

Estimated date for RIP/RC: 2011/2040

Funding to Date (up to FY05): \$6,844,000

Current year funding (FY06): \$2,587,000

Cost-to-Complete (FY07+): \$35,775,000

#### ***MMRP***

Primary Contaminants of Concern: MC, MEC

Affected Media of Concern: Soil, Groundwater

Estimated date for RIP/RC: 2017/2047

Funding to Date (up to FY05): \$0

Current year funding (FY06): \$300,000

Cost-to-Complete (2007+): \$33,317,000

### ***Installation Historic Activity***

WSMR is an active installation serving as the U.S. Army's largest rocket and missile development, firing and testing facility. It is a major center for the testing of new missile systems. WSMR performs applied research, field trials of new missile types, and new applications of existing missile systems. The Range also hosts inter-forces training of troops in a desert environment using tactical exercises for the North Atlantic Treaty Organization (NATO) and Allied Forces.

WSMR was established in 1945 for the development of a missile defense program that started with the testing of captured German V-2 rockets. The Range, formerly known as White Sands Proving Ground, was formed from privately held grazing land that was either donated to the government or condemned for the use of the government. WSMR has been active since its establishment with no decrease in land holdings.

The current configuration of WSMR includes launch sites, impact areas, instrumentation sites, and support facilities required to develop and test missiles and rockets. WSMR is designated as a National Range focused on the support of missile development and test programs for the Army, Navy, Air Force, National Aeronautics and Space Administration (NASA), and other governmental agencies. Thousands of missile firings, airdrops, and static tests have been conducted as part of this mission.

Initiation of the IRP began in August 1988 with a RCRA Facility Assessment (RFA) of WSMR, performed by A.T. Kearney for the EPA, Region VI. This report identified 138 solid waste management units (SWMUs) and 26 Areas of Concern (AOC).

The RFA is generally considered to be equivalent to the Preliminary Assessment (PA) required by the Comprehensive Environmental Response, Compensation & Liability Act (CERCLA).

In September 1989, WSMR was issued a RCRA Part B Operating Permit for the operation of a Container Storage Area (WSMR Hazardous Waste Storage Facility). The "Hazardous and Solid Waste Amendment" (HSWA) Module of this Permit addresses the investigation and corrective actions regarding releases from WSMR SWMUs (many of which are or are contained within IRP sites referenced in this IAP). The HSWA Corrective Action Module of the RCRA Part B Permit contains a listing of WSMR SWMU sites requiring investigation or cleanup.

From 1989 to 1996 the U.S. Environmental Protection Agency (EPA) served as the lead regulatory agency with the New Mexico Environment Department (NMED) providing review for all work proposed by WSMR. In January 1996, the EPA relinquished HSWA regulatory authority to NMED. NMED is currently the lead regulatory agency with the EPA providing oversight and supplementary assistance.

Since 1988, WSMR has continued to investigate and cleanup sites warranting further action. WSMR has performed numerous voluntary clean up actions and has conducted groundwater monitoring and soil borings to document the presence or absence of contaminants. WSMR has developed remedial work plans outlining the best procedures for clean up at remaining sites and petitioned the regulatory authority, NMED, for No Further Action rulings on sites at which WSMR has performed clean up actions and sites determined to have no contamination after completion of investigation(s).

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## Cleanup Program Summary

### **IRP**

- Prior Year Progress: Completed WSMR05 RAC Work plan. WSMR-71 VCM report received state approval; report recommended NFA and state agreed. WSMR-09 VCM report with a minor additional requirement added by state. Main Post Phase 3 RFI fieldwork completed.
- Future Plan of Action: Obtain state approval of Ph.III RFI for Main Post Multi Sites fieldwork. Complete fieldwork WSMR-85 Ph.III RFI. Seek closure of WSMR-09 and WSMR-41.

### **MMRP**

- Prior Year Progress: Six sites have been identified as eligible for the MMRP program at WSMR. Two of those appear to be FUDS eligible and should be transferred into the FUDS MMRP. The remaining four WSMR MMRP sites are scheduled for a SI in FY06.
- Future Plan of Action: The installation plans to begin the Supplemental SI and Remedial Investigations/ Feasibility Studies (RI/FS) by 2011 and execute follow on phases/actions as required in the individual site cleanup strategies.

# WHITE SANDS MISSILE RANGE

Installation Restoration Program

**Total AEDB-R IRP Sites / AEDB-R sites with Response Complete:** 71/46

**Different Site Types:**

1 Burn Area	2 Fire/Crash Training Areas	1 Contaminated Soil Piles
18 Landfills	1 Drainage Ditch	2 Disposal Pit/Dry Wells
2 Leach Fields	2 Sewage Effluent Settling Ponds	1 Firing Range
2 Incinerators	1 Oil Water Separator	1 Mixed Waste Area
2 Washracks	1 Storage Areas	1 Radioactive Waste Area
5 Spill Site Area	4 Sewage Treatment Plants	1 Above Ground Storage Tank
3 Waste Lines	4 Underground Storage Tank	1 Contaminated Groundwater
1 Soil Contamination After Tank Removal		10 Surface Impound/Lagoons
2 Explosive Ordnance Disposal Area		

**Most Widespread Contaminants of Concern:** Cyanide, Diesel, Explosives, Metals, Pesticides, POLs, SVOCs, TPH, VOCs

**Media of Concern:** Groundwater, Soil

**Completed REM/IRA/RA:**

1978 - WSMR-29, REM - debris removed, beds reconstructed  
 1981 - WSMR-27, REM - soil and concrete removed  
 1986 - WSMR-77, REM –structure removal  
 1989 - WSMR-50, REM – tanks (2) removed  
 1990 - WSMR-34, RA – lagoon liner removed, cover constructed  
 1990 - WSMR-41, RA – cover constructed  
 1990 - WSMR-54, REM – soil removal; 1999, IRA – in-situ gaseous reduction  
 1993 - WSMR-55, IRA –vacuum enhanced diesel recovery system installed  
 1993 - WSMR-67, REM – tanks (3) and contents removal  
 1994 - WSMR-72, REM – debris removal  
 1994 - WSMR-75, REM – tank and soil removal  
 1994 - WSMR-84, REM - structure removed; paints and solvents removed  
 1994-95 - WSMR-30, REM – debris and sludge removed  
 1994-95 - WSMR-58, REM – soil and debris removal  
 1995 - WSMR-11, RA - drains plugged, drain lines removed/disposed  
 1995 - WSMR-57, REM – soil, debris and structure removal  
 1996 - WSMR-32, REM – soil and debris removed  
 1996 - WSMR-53, REM – liner and soil removed  
 1997 - WSMR-33, REM – soil, concrete and asphalt removed  
 1997 - WSMR-36, REM – soil removal  
 1997 - WSMR-78, REM – waste and sludge removal; sump filled with concrete  
 2003 - WSMR-14, RA - soil cover constructed, \$652k  
 2005 - WSMR-31, REM – contaminated soil removed, \$50.6k

### ***Total IRP Funding***

Prior years (up to FY05):	\$ 6,844,000
Current year funding (FY06):	\$ 2,587,000
Future Requirements (FY07+):	<u>\$35,775,000</u>
Total:	\$45,206,000

### ***Duration of IRP***

Year of IRP inception: 1988

Year of IRP RIP/RC: 2011

Year of IRP completion including Long Term Management (LTM): 2040

## ***IRP Contamination Assessment Overview***

WSMR submitted a Resource Conservation and Recovery Act (RCRA) Part A permit application after the New Mexico Hazardous Waste Management Regulations were published on May 19, 1980. The permit included the waste management activities at the cleaning facility located at the High Energy Laser System Test Facility (HELSTF) located 18.5 miles northeast of the Main Post. Through negotiations with the New Mexico Environmental Improvement Division, Hazardous Waste Section, the final design was approved and incorporated into the RCRA Part A permit on January 30, 1984 (Pache, 1984).

WSMR applied for a RCRA Part B Permit in 1984, which included operations at HELSTF. As part of the permit application WSMR was required to conduct a RCRA Facility Assessment (RFA) to determine whether there is a potential or an actual release of hazardous waste or hazardous waste constituents anywhere at its facility. Distinct locations of potential contamination are referred to as solid waste management units (SWMUs). Less defined areas of potential contamination are referred to as areas of concern (AOCs).

To date, each WSMR environmental restoration site is referred to by its SWMU or AOC ID and its IRP ID, when applicable. Under current DoD guidance, those sites contaminated prior to October 17, 1986 by a now inactive operation, such as a former vehicle maintenance shop, shall be funded under the Defense Environmental Restoration Program (DERP), more specifically, the Installation Restoration Program (IRP) if located at an active DoD installation.

WSMR submitted the RFA (A.T. Kearney, Inc., 1988) to EPA Region VI in 1988 and identified 138 SWMUs and 26 AOCs. Among these sites, 17 SWMUs and 3 AOCs were located at HELSTF. **This point is considered the initiation of the WSMR Installation Restoration Program.** The results of this RFA were used by the EPA to prepare the HSWA Corrective Action Module of the RCRA Part B Permit. The EPA approved and issued the Permit to WSMR on 29 September 1989. Stipulations of the Permit required WSMR to investigate and cleanup 92 SWMU sites and 4 AOCs.

Before the investigation of SWMUs, the U.S. EPA Region VI directed WSMR to conduct an Interim Remedial Measures (IRM) to address a leaking underground storage tank at the HELSTF. An IRM work plan was submitted to EPA and NMED in December 1991. Since that time, WSMR has been performing the required cleanup to remove “floating” diesel product from the groundwater. This site is IRP site WSMR-55.

The 92 SWMU sites identified in Appendices I-IV of the Permit were assessed for releases to the environment during the implementation of the Phase I RCRA Facility Investigation (RFI). The Phase I RFI Report (I.T. Corp., 1992) identified 80 SWMUs that required further investigation. Of the 80 sites, 24 were approved for No Further Remedial Action Planned (NFRAP) in September 1993. A modification to the RCRA Part B Permit was initiated to include this change in the HSWA

Corrective Action Module of the Permit. The change was made and approved by EPA, Region VI, in December 1995.

## IRP Contamination Assessment

Based on EPA and NMED direction, WSMR initiated a Phase II work plan to further investigate the presence or absence of contaminants at 52 SWMUs identified by the Phase I Investigation as containing contaminants that may pose a risk to human health or the environment. EPA and NMED approved the work plan in September 1993.

In December 1994, WSMR completed Phase II of the RFI (Sverdrup, 1994) and submitted the report for regulatory review. WSMR received state and federal EPA, Region VI comments on the Phase II RFI in 1996. Both the NMED and EPA Region VI issued notices of deficiency (Kelley, 1996; Honker, 1996) regarding the report. The NMED emphasized the need to address the SWMUs at HELSTF differently than those at other locations. WSMR provided their final response to the NOD on September 22, 1997 (Ladd, 1997). Since then, many environmental restoration activities have been initiated and/or completed on a site-by-site basis.

WSMR submitted a series of no further action (NFA) petitions to the NMED Hazardous Waste Bureau (HWB) beginning in January 2000 for various SWMUs on the WSMR RCRA Permit. The petitions were submitted based on the results of previous investigations and closure reports documenting remedial activities but were denied by NMED in March 2002 (Frischkorn, 2002) on the basis that further characterization and ecological risk assessment were required. Many of the related IRP sites were designated as Response Complete during 2000 in the Army's DSERTS database system. During FY02, the SWMUs were subsequently reopened within WSMR's IRP for further study and included 18 SWMUs dispersed among 14 related IRP sites (see Table 1 below).

The sites reopened in 2002 are being investigated under two distinct groups – those sites located near the Main Post and those sites located at HELSTF (HELSTF sites are highlighted in yellow in Reopened Sites, Table 1). A Phase III RFI work plan is currently in development for those sites located on or near the Main Post. This effort is commonly referred to as the “Multi-Site Main Post Phase III RFI”. This work plan includes 15 SWMUs dispersed among 11 IRP sites. Additionally, and in large part to the Phase II RFI comments received from NMED in 1996, WSMR has initiated a Phase III RFI investigation at the HELSTF to investigate environmental contamination at HELSTF using a holistic approach. The work plan for this effort is also currently under development and includes IRP sites WSMR-52, 53, 54, 55, 78, 83 and 85. IRP Sites WSMR-53, 78 and 83 were part of those sites reopened during FY02 and have one SWMU related each (See Table 1). This investigative effort is underway and is commonly referred to as the “HELSTF Phase III RFI”.

Finally, various efforts continue on a site-by-site basis at other IRP sites including WSMR-05, 09, 14, 41, 61 and 62. Table 2 (page 23-1) provides the current status of each IRP site and a cross reference to related SWMUs and AOCs .

**GPRA Status:** The Army's GPRA performance is measured against DERP goals (a.k.a., Defense Planning Guidance goals). DERP DPG goals are time based and require DOD installations to complete restoration activities according to a site's relative risk. The higher the relative risk, the sooner a site's restoration activities must be completed. Current DPG goals for non-BRAC installation (such as WSMR) are as follow:

---

## IRP Contamination Assessment

Restoration activities will clean up to a lower relative risk category, or have remedial systems in place for:

- 50% of identified high relative risk sites by the end of FY2002,
- 100% of identified high relative risk sites by the end of FY2007,
- 100% of identified medium relative risk sites by the end of FY2011,
- 100% of identified low relative risk sites by the end of FY2014.

WSMR's IRP is meeting these goals.

### ***IRP Cleanup Exit Strategy***

The following discusses the strategy for reaching RIP/RC for the current 24 IRP WSMR that require future restoration activity:

**FY2006:** Final state approval, thus RC, of RFI report for sites WSMR- 30, 31, 32, 33, 36, 57, 60, 73, 74, 79 and 84 (11 sites).

**FY2008** begin CMS for WSMR-52, 53, 54, 55, 78, 83 and 85 (HELSTF Sites – 7 sites)

**FY2011** begin CMI(C) phase for these sites.

**FY2006** complete CMI(C) activity at WSMR-05.

**FY2009** complete CMI(C) work at WSMR-61.

**FY2028** complete CMI(O) work at WSMR-62.

**FY2029** complete LTM work at WSMR-85.

# IRP Contamination Assessment

## REOPENED SITES - TABLE 1

	IRP ID	SWMU Alias	IRP Site Description	ECO RA <sup>1</sup>	BG Soil <sup>2</sup>	Conf Sampl <sup>3</sup>	Final RFI Rpt <sup>4</sup>	Rem Act <sup>5</sup>
1	WSMR-30	80	STP Sludge Waste Pile (Main Post)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> As	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	--
2	WSMR-31	21	Main Post Former FFTA and Pit	<input checked="" type="checkbox"/>	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	--
3	WSMR-32	22	Main Post Former FFTA Waste Pile	<input checked="" type="checkbox"/>	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <sup>6</sup>
4	WSMR-33	14, 15	Used Battery Accumulation Areas (Main Post)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Pb, As	--	<input checked="" type="checkbox"/>	--
5	WSMR-36	8, 9	Former Waste/Oil Tank & Sump East Bldg 1794	<input checked="" type="checkbox"/>	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	--
6	WSMR-53	145	HELSTF Test Cell 4 Lagoon	n/a	n/a	n/a	n/a	n/a
7	WSMR-57	156	Former Golf Course Pesticide Storage Shed	<input checked="" type="checkbox"/>	--	--	--	--
8	WSMR-60	12, 13	Wash Ramp & Drain/Sump East of Bldg 1778	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> As	--	<input checked="" type="checkbox"/>	--
9	WSMR-73	17	Waste Underground Injection Pipe	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> As	--	--	--
10	WSMR-74	10, 11	Former Waste Oil Tank/Sump-Bldg 1778	<input checked="" type="checkbox"/>	--	--	--	--
11	WSMR-78	147	HELSTF Decon Pad and Underground Tank	n/a	n/a	n/a	n/a	n/a
12	WSMR-79	16	Heavy Equipment Wash Pad and Drain @ Bldg 1736	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> As	--	--	--
13	WSMR-83	148	Former MAR Waste Stabilization Pond	<input checked="" type="checkbox"/>	--	--	<input checked="" type="checkbox"/>	--
14	WSMR-84	140	Former LC-37 Paint Dump	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Pb, As	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	--

1. ECO RA = Ecological Risk Assessment required

2. BG Soil = Background Soil study required; Metals of concern are noted.

3. Conf Sampl = Confirmation Sampling is required.

4. Final RFI Rpt = Final RFI Report is required (a final report will be required for all work conducted under this WAO)

5. Rem Act = Removal Action is required.

6. A limited excavation may be required and recommended as a future action for sight WSRM-32.

Sites highlighted in yellow are located at HELSTF and being investigated as part of WSMR-85 efforts.

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### 1984

- Part A Revision, EPA ID NO: NM 2750211235, EPA, 1984

### 1987

- Final Contamination Assessment Report Temperature Test Facility, Geoscience Consultants Ltd., May-1987

### 1988

- Groundwater Contamination Survey No. 38-26-0862-88 Evaluation of Solid Waste Management Unit, U.S. Army Environmental Hygiene Agency, Nov, 1987-Feb, 1988
- RCRA Facility Assessment PR/VSI Report, A.T. Kearney, Aug, 1988

### 1990

- Draft Hazardous Waste Landfill Closure Report, ASI, Jun, 1990
- RCRA Facility Investigation (RFI) Work plan Appendix I Sites – White Sands Missile Range, NM (Contract DACA 87-88-D-0079, Annex "L"), The EDGE Group, Aug, 1990

### 1991

- Factors That Effect Performance of In-Situ Soil Venting Operations and Contamination Assessment of Methylene Chloride at the TTF Facility, New Mexico State University, Oct, 1991
- Interim Remedial Measures Work Plan for the Systemic Diesel Spill (SWMU 154), High Energy Laser System Test Facility, Lockheed Engineering and Science Co., Dec, 1991

### 1992

- Final RCRA Facility Investigation (RFI) Report, Appendix I Sites (Vol. I & II), I.T. Corp., Mar, 1992
- Final HELSTF Groundwater Assessment, I.T. Corp., Dec, 1992
- Final RCRA Facility Investigation (RFI) Report, Appendix II-IV Sites (Vol. I & II), I.T. Corp., Dec, 1992

### 1993

- Final Closure Report for the Storage Tank Removal and Remediation at Stallion Range Center, ASI, Aug, 1993
- Final Phase II Addendum to the RCRA Facility Investigation Work Plans, Appendix II-V Sites, Sverdrup, Oct, 1993
- Draft Work Plan for the RCRA Facility Investigation at the Temperature Test Facility, Woodward-Clyde Consultants, Oct, 1993
- Final Interim Report Systemic Diesel Spill (SWMU 154) HELSTF Cleaning Facility (Vols. I&II), I.T. Corp., Dec, 1993

### 1994

- Final Interim Remedial Measure (IRM) Work Plan Systemic Diesel Spill (SWMU 154) High Energy Laser Systems Test (HELSTF) Facility, I.T. Corp., Mar, 1994
- Systemic Diesel Spill, SWMU 154 [Final] Free Product Recovery, Tetra Tech, Inc, Aug, 1994
- Commissary Landfill Trench Sampling, ASI, Oct, 1994
- Removal of Debris and Dried Sewage Sludge Piles Work Plan (Vols. 1-4), AWD Technologies, Inc., Oct, 1994
- Groundwater Quality Investigation [Report] for the Monitoring Well Program, Environmental Science and Engineering (ESE), Oct, 1994
- Final Phase II RCRA Facility Investigation Appendices II-V Sites, Sverdrup, Nov, 1994

### 1995

- Soil Vapor Extraction & Treatment Plant for the Temperature Test Facility, AWD Technologies, Inc., Jan, 1995
- General Work Plan for Removal of Debris and Dried Sludge Piles, Modification #3 (SWMUs 8, 22, 27-30, 145, 147, 150) WSMR, NM (Vols. 1&2), Dow, Jan, 1995
- Work Plan for the Monitoring Well Program, ESE, Jan, 1995
- Operations and Maintenance Manual; Product Recovery System for the HELSTF Systemic Diesel Spill (SWMU 154), ASI, May, 1995
- Investigation Derived Waste [Disposal] Close Out Report, Dow, Dec, 1995

### 1996

- RCRA Facility Investigation Report - Temperature Test Facility, Woodward-Clyde Consultants, Mar, 1996
- Draft Groundwater Quality Investigation for the Monitoring Well Program, ESE, Apr, 1996
- Notice of Deficiencies Phase II RCRA Facility Investigation (RFI) Report for Appendices I – IV SWMUs, Honker, W.K., May 1996
- Close Out Report, SWMU 61, Tula Peak Unexploded Ordnance Incinerator, SWMUs 92-100, Liquid Propellant Storage Area, Dow, Aug, 1996
- Report of Interim Remedial Action, Removal and Disposal of Dried Sludge, SWMU 79 White Sands Missile Range, New Mexico, Dow, Aug, 1996
- Results of Groundwater Sampling and Analyses from Red Rio Munitions Burial Sites [SWMUs 50-54], MEVATEC Corp., Aug, 1996
- Rational National Standards Initiative, White Sands Missile Range, Final Report - Presentation of Screening Levels and Remedial Cost Estimates., Radian International., Sep, 1996
- Notice of Deficiency (NOD), NMED, Sep, 1996

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- Groundwater Quality Investigation [Report] for the Monitoring Well Program, ESE, Oct, 1996
- Close Out Report, SWMU 8, Waste Oil Tank, Dow, Jan, 1997
- Close Out Report, SWMU 21, Former Fire Fighting Training Area, Dow, Jan, 1997

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- Close Out Report, SWMU 22, Abandoned Soil Piles Near the FFTA, Dow, Jan, 1997
- Close Out Report, SWMU 145, Test Cell 4 Lagoon, Dow, Jan, 1997
- Close Out Report, SWMU 147, Underground Waste Tank (Sump), Dow, Jan, 1997
- Close Out Report, Underground Waste Tank (Sump), Dow, Jan, 1997
- [Draft] SWMU Groundwater Monitoring Program Report, Fall 1996, MEVATEC Corp., Jan, 1997
- [Draft Final] SWMU Inventory Report at White Sands Missile Range, MEVATEC Corp., Mar, 1997
- WSMR Final Response to NMED Comments on the WSMR Phase-II RFI-Revision 1, December 1994, Ladd, T.A., Sep, 1997
- Close Out Report (Draft), SWMUs 14 and 15, Used Battery Accumulation Areas, Radian International, Sep-97

### 1998

- Groundwater Monitoring Program at Hazardous Test Area, Tula Peak, Stallion Range Center and Oscura Bombing Range, MEVATEC Corp., Mar-98
- Historic Property Identification Efforts of Four Solid Waste Management Units, Human Systems Research (HSR), May-98
- Plan of Action, Landfill Debris Removal, Oscura Range Center, Radian International, Jun-98

### 1999

- In-Situ Gaseous Reduction Pilot Demonstration-Final Report, DOE, Feb-99
- Ground-Water Monitoring at the HELSTF, Cleaning Facility RCRA Monitoring Well Sampling, USGS, Feb-99
- Corrective Measures Implementation Work Plan for the NOP Landfill, SWMUs 47, 48, and 49 (DSERTS WSMR-71), MEVATEC Corp., Dec-99

### 2000

- RCRA Facility Investigation Former Main Post Landfill 1A [WSMR-39 (SWMU 64)], MEVATEC Corp., Apr-00
- RCRA Facility Investigation Former Main Post Landfill 2A WSMR-40 (SWMU 64), MEVATEC Corp., Jun-00
- Petition to Perform Class III Modifications to Remove Solid Waste Management Units 10, 11, 16, 17, 19, 20, 80, 132, 140 and 156 from the White Sands Missile Range RCRA Part B Permit, MEVATEC Corp., Jan-00

### 2001

- Closure Report Waste Pond #1, Nuclear Effects Reactor Facility, MEVATEC Corp., Sep-01
- RCRA Facility Investigation Former Main Post Landfill No. 3 WSMR-61 (SWMU 65), MEVATEC Corp., Jun-01

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### 2002

- Results of the April 2002 Semi Annual Long Term Groundwater Monitoring Event at the TTF (WSMR-41, SWMU 108; WSMR-34, SWMU 104), MEVATEC Corp., Jul-02
- Report of the Spring 2002 Groundwater Sampling Event at the HELSTF Construction Landfill Site [WSMR-52], MEVATEC Corp., Oct-02
- Report of the Spring 2002 Groundwater Sampling Event at the HELSTF Chromium Spill Site [WSMR-54], MEVATEC Corp., Oct-02
- Report of the Spring 2002 Groundwater Sampling Event at the HELSTF Diesel Spill Site [WSMR-55], MEVATEC Corp., Oct-02
- 1<sup>st</sup> Round Semiannual Groundwater Sampling Event CY02, Rhodes Canyon Landfills, WSMR-14 (SWMUs 114/115), MEVATEC Corp., Oct-02
- Cyanide Contamination at the Former STP Percolation Ditches Groundwater Monitoring Report for September/October and December Sampling Events of Calendar Year 2001 (WSMR-62, SWMU 82 and 83), MEVATEC Corp., Dec-02

### 2003

- Final Long-Term Monitoring Report: October 2002 Event at the TTF MeCl Spill Site (WSMR-41, SWMU 108), MEVATEC Corp., Feb-03
- Final 2002 Annual Report: Temperature Test Facility Disposal Surface Impoundment (WSMR-41, SWMU 108), MEVATEC Corp., Feb-03
- Arsenic Background Evaluation Hazardous Waste Storage Facility Evaporation Tank [WSMR-37, SWMU 90], MEVATEC Corp., Feb-03
- Final Groundwater Monitoring Report, June 2002 Sampling Event at the HELSTF Construction Landfill (WSMR-52; SWMU 38 and 39), MEVATEC Corp., Feb-03
- Final Groundwater Monitoring Report, June 2002 Sampling Event at the HELSTF Chromium Spill Site (WSMR-54; SWMU 143), MEVATEC Corp., Feb-03
- Final Groundwater Monitoring Report, June 2002 Sampling Event at the HELSTF Diesel Spill Site (WSMR-55; SWMU 154), MEVATEC Corp., Feb-03
- Revised Final Rhodes Canyon Landfill Corrective Measure Implementation Work Plan (WSMR-14; SWMUs 114 and 115), BAE Systems, Mar-03
- Final Groundwater Monitoring Report First Semi-Annual Event for 2002 Former STP Percolation Ditches (WSMR-62; SWMU 82 and 83), BAE Systems, Mar-03
- Revised Final Rhodes Canyon Landfill Corrective Measure Implementation Work Plan (WSMR-14; SWMUs 114 and 115), BAE Systems, Jun-03
- Final Long-Term Monitoring Report April 2003 Sampling Event and Monthly Inspections at the TTF MeCl Spill Site (WSMR-41; SWMU 108), BAE Systems, Jul-03
- Final Groundwater Monitoring Report January 2003 Sampling Event Rhodes Canyon Landfill WSMR-14; SWMU 114 and 115, BAE Systems, Aug-03
- Final Groundwater Monitoring Report June 2002 Sampling Event Rhodes Canyon Landfill WSMR-14; SWMU 114 and 115, BAE Systems, Aug-03

### 2003 (continued)

- Final Groundwater Monitoring Report February 2003 Sampling Event HELSTF Construction Landfill WSMR-52; SWMU 38 and 39, BAE Systems, Aug-03
- Final Groundwater Monitoring Report January 2003 Sampling Event HELSTF Diesel Spill Site WSMR-55; SWMU 154, BAE Systems, Aug-03
- Final Groundwater Monitoring Report January 2003 Sampling Event HELSTF Chromium Spill Site WSMR-54; SWMU 143, BAE Systems, Sep-03

### 2004

- Revised Final Corrective Measures Study Addendum Monitored Natural Attenuation Proposal Former Sewage Treatment Plant Percolation Ditches [WSMR-62] (SWMUs 82 and 83), BAE Systems, Jan-04
- Final Long-Term Monitoring Report October 2003 Sampling Event and Monthly Inspections TTF MeCl Spill Site (WSMR-41, SWMU 108), BAE Systems, Jan-04
- Final RCRA Facility Investigation Report Former Oscura Range Center Construction Landfill (WSMR-05; SWMU 159), BAE Systems, Jan-04
- Final Voluntary Corrective Measures Implementation Report North Oscura Peak Landfill (WSMR-71; SWMUs 47, 48, and 49), BAE Systems, Feb-04
- Final Groundwater Monitoring Report February-March, June and December 2003 Sampling Events Former STP Percolation Ditches (WSMR-62; SWMU 82 and 83), BAE Systems, May-04
- Final Work Plan Phase III RFI for Multiple Sites SWMU 8-17, 21, 22, 80, 140 & 156 (IRP Sites WSMR# 30-32, 57, 73, 79 and 84), BAE Systems, Jun-04
- June 2004 Sampling Event at the Former STP Percolation Ditches WSMR-62 (SWMUs 82-83), BAE Systems, 29 Jul 04 (Letter Report)
- Long-Term Monitoring Report: April 2004 Sampling Event and Monthly Inspections (Dec 2003 – May 2004) TTF Methylene Chloride Spill Site (WSMR-41, SWMU 108), BAE Systems, Jul-04
- Final HELSTF Groundwater Monitoring Report July 2003 Sampling Event [WSMR-52, WMSR-54 and WSMR-55], BAE Systems, Aug-04
- Work Plan Clean Closure Demonstration at the TTF, BAE Systems, Aug-04
- May 2004 Groundwater Monitoring Sampling Event at the HELSTF Sites: Construction Landfill (WSMR-52, SWMUs 38 & 39), Chromate Spill (WSMR-54, SWMU 143) and Systemic Diesel Spill (WSMR-55, SWMU 154), BAE Systems, 11 Aug 04 (Letter Report)
- Letter Report – Well T-21 Groundwater Sampling [WSMR-40; SWMU 64], BAE Systems, 31 Aug 04
- Final Remedial Action Decision Document Rhodes Canyon Landfill, BAE Systems, Aug-04
- Voluntary Corrective Measures Implementation Report Nuclear Effects Reactor Facility Waste Ponds #1 and #2, BAE Systems, Sep-04
- Final Corrective Measures Implementation Report Rhodes Canyon Landfill, BAE Systems, Sep-04
- Final Groundwater Monitoring Report Rhodes Canyon Landfill June 2003 and January 2004 Sampling Events, BAE Systems, Sep-04

### 2005

- Final Long-Term Monitoring Report November 2004 Sampling Event and Monthly Inspections (June-December 2004) TTF Methylene Chloride Spill Site (WSMR-41; SWMU 108), White Sands Technical Services L.L.C., Feb-05
- Corrective Measures Study Addendum: Former STP Percolation Ditches Work Plan to Install Additional Monitor Wells (WSMR-62; SWMUs 82 and 83), White Sands Technical Services L.L.C., Feb-05
- Final Revised Work Plan Clean Closure Demonstration at the TTF (WSMR-41; SWMU 108), White Sands Technical Services L.L.C., Feb-05
- Final Phase III RFI Work Plan for Multiple Sites [SWMU 8-17, 21, 22, 80, 140 & 156 (IRP Sites WSMR# 30-33, 36, 57, 60, 73, 74, 79 and 84)], White Sands Technical Services L.L.C., Feb-05
- Combine Results of Spring 2005 [March-May 2005] HELSTF Groundwater Sampling Event (WSMR-52, 54 and 55), White Sands Technical Services L.L.C., 19 Jul 05 (Letter Report)
- Analytical Results of First [February/March] 2005 Groundwater Sampling Event for the Former STP Percolation Ditches (WSMR-62), 29 Jul 05, White Sands Technical Services L.L.C. (Letter Report)
- Phase III RFI Work Plan HELSTF Sites (WSMR-52, 54, 55 and 85), White Sands Technical Services L.L.C., Aug-05
- Final TTF Long-Term Monitoring Report for January-May 2005 SWMU 108 [WSMR-41], White Sands Technical Services L.L.C., 22 Jun-05 (Letter Report)
- Abbreviated Work Plan for the Abandonment of Well T-21 IRP Site WSMR-40, SWMU 64, White Sands Technical Services L.L.C., Oct-05 (Letter Report)
- Considerations of Monitored Natural Attenuation [WSMR-62], White Sands Technical Services L.L.C., Oct-05 (Letter Report)
- Clean Closure Demonstration Report Methylene Chloride Spill Area Vapor Extraction at the TTF [WSMR-41, SWMU 108], White Sands Technical Services L.L.C., Oct-05
- 2004 Annual Sampling Event HELSTF Groundwater Monitoring Report [WSMR-52, 54 and 55], White Sands Technical Services L.L.C., Nov-05
- Addendum Corrective Measures Implementation Report Rhodes Canyon Landfill [WSMR-14; SWMUs 114 and 115], White Sands Technical Services L.L.C., Dec-05

### 2006

- Final Long-Term Monitoring Report: 2005 Groundwater Monitoring Events & Monthly Inspections at the Methylene Chloride Spill Site (WSMR-41, SWMU 108), White Sands Technical Services L.L.C., Feb-06
- Voluntary Corrective Measures Work Plan Oscura Range Center Landfill C (WSMR-05; SWMU 159), White Sands Technical Services L.L.C., Feb-06

# WHITE SANDS MISSILE RANGE

Installation Restoration Program  
Site Descriptions

# WSMR-05 (PAGE 1 OF 2)

## FORMER OSCURA RANGE CENTER LANDFILLS

### SWMU 157-159

#### SITE DESCRIPTION

WSMR-05 consists of three separate landfill areas located near the Oscura Range Center (ORC) in the northeastern portion of the Range.

Landfill A (SWMU 157) is located south of the communications building within the ORC cantonment area. Waste including insulated wire, wood, scrap metal, tires, paper, and miscellaneous office materials were deposited into an excavated trench measuring 16 ft x 6.5 ft x 5 ft. Adjacent former waste disposal sites included a scaffold used for draining petroleum/oil/lubricant (POL) from vehicles, scattered small piles of construction and demolition debris, and several smaller and shallower trenches used to bury insulated wire. In June 1998 (Radian, 1998), all wastes described above were excavated and transported to the Lincoln/Otero Regional Landfill. Confirmation soil samples were collected to confirm the absence of contaminants. Prior to debris removal, a survey of the archaeological resources of the landfill was conducted and submitted to the State Historic Preservation Office for approval (HSR, 1998).

Landfill B (SWMU 158) is located 0.5 mi south of ORC. Refuse was dumped on the ground surface at this site until the early 1980's. Waste was similar in volume and type to Landfill A, but included spent flare casings, rubber tires, and a trailer. In June 1998 (Radian, 1998), all wastes were excavated and transported to the Lincoln/Otero Regional Landfill. Confirmation soil samples were collected to confirm the absence of contaminants. Prior to debris removal, a survey of the archaeological resources of the landfill was conducted and submitted to the State Historic Preservation Office for approval (HSR, 1998).

Landfill C (SWMU 159) is situated approximately 2 mi north of ORC between Range Roads 9 and 11. Approximately 3 acres is bladed with little waste visible on the surface. A geophysical survey conducted in April and May 1998 defined buried metal approximately 8-10 ft below grade in an area 200 ft by 30 ft. Non-compacted clean soil covers the site.

An investigation of Landfill C was conducted during FY02 to determine if buried material from the landfill has contaminated soil beneath the site. Soil contamination was not detected. WSMR submitted a RFI Report to the NMED in FY04. Clean closure is recommended in this report to begin after removal of the buried material. Since buried material will be removed from the site, future long term monitoring will not be required.

A Class III Permit Modification (i.e., NFA Petition) for SWMUs 157-159 will be submitted to NMED following completion of clean closure activities.

Initiated the CMI(C) activities in FY05.

#### STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
Metals

**MEDIA OF CONCERN:**  
Soil

Phases	Start	End
RFA.....	199708 .....	199709
RFI .....	199710 .....	200409
DES .....	200410 .....	200603
CMI(C) .....	200510 .....	200709

**RC DATE:** 200709

# **FORMER OSCURA RANGE CENTER LANDFILL SWMU 157-159**

## **CLEANUP STRATEGY**

The following activities only address Landfill C (SWMU 159):

- Implement corrective measure (i.e., buried material removal) in FY06;
  - Submit a Class III Permit modification for removal of SWMUs 157-159 from the HSWA.
- Corrective Action Module of the RCRA Part B Permit following completion of CMI(C) activities and receiving NMED approval

## NUC EFFECTS REACTOR FACILITY (BLDG 21235)

SWMU 160-161

## SITE DESCRIPTION

WSMR-09 consists of two inactive waste ponds at the Nuclear Effects Reactor Facility (NERF) located 3 mi south of the Main Post, just northwest of the WSMR El Paso gate (a.k.a., WAR road entrance).

Waste Pond # 1 (SWMU 160) is located southeast of Building 21225, the Laboratory Building, just southeast of the Guard House #1. This pond, deactivated in 1996, was known to receive wastewater from floor drains, sinks, and toilets in Building 21225. Building 21225 served as a wet laboratory from the early 1960's until 1985. The wastewater stream reportedly included human waste and, possibly, laboratory waste (possible radioactive, solvents, metals, and acids). The pond is approximately 50 ft in diameter.

Waste Pond # 2 (SWMU 161) is located east of Building 21235, the Reactor Building. This pond received wastewater from Building 21235 from the 1960's to 1996. Reportedly, only sewage was received. There are no reported releases of radioactive materials, solvents, metals, or acids. However, the pond was physically connected to the Reactor Building and received wastewater from floor drains and sinks, providing a route for potential contaminants. The pond is approximately 45 ft in diameter.

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) conducted a limited Hazardous and Material Waste Study (Draft No. 37-EF-5482-97) of the two inactive ponds during 6-10 January 1997. Surface soil samples indicated concentrations of arsenic at 16.2 milligrams per kilogram (mg/kg), cadmium 10.4 mg/kg, mercury 4.0 mg/kg, and silver 106 mg/kg, below USEPA Region IX PRGs.

Due to the potential for contaminants other than those tested by USACHPPM, a remedial investigation of the inactive waste ponds was performed in September 1997. This investigation included the collection and analysis of surface and subsurface soil samples. The samples were analyzed for metals, acids, Polychlorinated Biphenyl (PCB's), alpha-beta radiation, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs).

During the September 1997 field investigation, eight soil samples were collected at various depths from each of the waste ponds and analyzed for radiological and non-radiological constituents. Analysis results were used for a site-specific risk based screen. The risk evaluation revealed elevated levels of PCBs (Aroclor 1254 at 5.1 ppm) and Arsenic (4.7 ppm) in surface soil samples. These results warranted soil removal to effectively eliminate any potential exposure pathways.

## STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Medium

**CONTAMINANTS OF CONCERN:**  
PCBs

**MEDIA OF CONCERN:**  
Soil

Phases	Start	End
RFA.....	199701 .....	199701
RFI.....	199710 .....	199804
DES .....	199808 .....	199903
CMI(C) .....	200105 .....	200609

**RC DATE:** 200609

**NUC EFFECTS REACTOR FACILITY (BLDG 21325)****SWMU 160-161****SITE DESCRIPTION**

The NMED Hazardous Waste Bureau (HWB) published a position paper dated 2 March 2000 titled Risk-based Remediation of Polychlorinated Biphenyls at RCRA Corrective Action Sites. The position paper states "PCB-contaminated soil/sediments should be remediated to either a default concentration of 1 ppm total PCBs or a risk-based PCB concentration level established through performing a health risk evaluation."

A work plan was completed for the waste ponds. A detailed description of field activities was prepared and included in the work plan submitted to the NMED HWB in March 1999. The plan specified methods for excavation, disposal, and backfilling of the waste ponds.

A public meeting was held on 23 February 2000 to solicit public comment concerning the proposed remedial action for this site. The public did not provide comments on this site.

Final remedial activities were completed at Waste Pond #1 (SWMU 160) during May 2001. Approximately 208 cubic yards of soil and debris (concrete and cast iron pipe) were removed and disposed as non-hazardous waste. Confirmation samples were collected which indicated the residual PCB contamination was removed during the excavation. Following excavation, the pond was backfilled and compacted using native soils. A closure report was submitted to the NMED. Subsequently, the NMED submitted a Notice of Deficiency (NOD) in June 2003 following their review of the closure report. Among other comments, the NOD questioned the techniques used and the number of confirmation samples. In response, WSMR re-sampled in May 2004 and submitted the results as part of a Voluntary Corrective Measures (VCM) report discussed below.

Remediation for Waste Pond #2 (SWMU 161) required review of site-specific work procedures by the Army Reactor Council according to NERF personnel. The work procedures for Waste Pond #2 were submitted to the Council in July 2001 and approved in May 2004. Waste Pond #2 was subsequently excavated, confirmation samples obtained and backfilled in June 2004. A VCM report describing field activities as well as confirmation samples taken at Waste Pond #1 was submitted the NMED in December 2004.

The 2004 field activities were originally scheduled for FY06; however, WSMR was able to expedite their execution.

In January 2006, WSMR received NMED's review approving the VCM report, however, NMED had additional requirements including closure certification and survey platt as required in 40 CFR 264.

**CLEANUP STRATEGY**

Submit closure certification and survey platt and await final approval by NMED.

# WSMR-14 (PAGE 1 OF 2)

## FORMER RHODES CANYON LANDFILLS

### SWMU 114-115

#### SITE DESCRIPTION

WSMR-14 consists of two inactive landfills located approximately 0.25 mi northwest of Rhodes Canyon Range Center, 65 mi north of the WSMR Main Post at the intersection of Range Road 6 and Range Road 7.

The start-up date for the oldest landfill (SWMU 115) is unknown but it was closed in 1976, prior to the implementation of RCRA. SWMU 115 is irregularly shaped based on results from a geophysical survey conducted during the Phase I RFI; the southern section is approximately 400 ft across while the northern section is approximately 380 ft long and 120 ft wide.

SWMU 114 is the most recently active area, reportedly receiving waste until approximately 1987. SWMU 114 is located east of SWMU 115 and is approximately 360 ft x 480 ft in size. An 8-ft chain link perimeter fence surrounded the landfill until implementation of corrective measures in 2004. The exact dates of landfill operation could not be determined.

SWMU 114 was reported by the RFA (A.T. Kearney, 1988) to have received office refuse and construction debris from the Rhodes Canyon Range Center. The RFA reported that SWMU 115 received sanitary waste from Rhodes Canyon and inert missile debris from up-range impact areas. The RFA concluded that there was a low to moderate potential for release to soil and groundwater from SWMU 115 based on the lack of documentation on the types of waste managed. The RFA suggested a RFI be conducted to confirm no hazardous constituents were disposed. No further action was suggested at SWMU 114 because it was considered active at the time the RFA was conducted.

The RFI (IT Corp., 1992) concluded that no release is suspected to have occurred from SWMU 115 and recommended that the RFI be discontinued.

From 1996 to present, groundwater samples have been collected semi-annually from one up gradient well and three down gradient wells. No VOCs, SVOCs, or explosive residue compounds have been detected from any of the samples. Chloride and sulfate concentrations have been detected above the New Mexico protection standard. However, elevated concentrations of chloride and sulfate and lesser concentrations of fluoride and nitrate are likely representative of background conditions in this portion of the Tularosa Basin as discussed in past GWM reports.

#### STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
Heavy Metals, Explosives

**MEDIA OF CONCERN:**  
Groundwater

Phases	Start	End
RFA.....	198805 .....	198808
RFI .....	199103 .....	200310
CMI(C) .....	200310 .....	200409
LTM.....	200410 .....	203509

**RC DATE:** 200409

**WSMR-14 (PAGE 2 OF 2)**

**FORMER RHODES CANYON LANDFILLS**  
**SWMU 114-115**

**SITE DESCRIPTION**

The original landfill soil cover was deficient and there were no surface water control measures in place to prevent storm water run-on onto and off the site. A CMI Work Plan was submitted to NMED on January 15, 2002. The CMI proposed that a landfill soil cover and storm water control structures be designed and constructed to minimize the potential for groundwater contamination from the site. NMED approved CMI work plan in October 2003. CMI work plan was implemented beginning in FY04. Soil cover construction completion occurred in August 2004 along with revegetation efforts, fence construction, signage and drainage controls. The only CMI work plan requirement remaining is the installation of two replacement monitoring wells to provide improved down gradient coverage.

A decision document was completed (including proper signatures) in August 2004 (signed on October 2004).

In 2005, completed installation of two, additional, down gradient wells and initiated LTM activities including annual GWM and soil cover/fence maintenance.

In a January 2006 NMED letter, NMED requested closure certification and survey plat in accordance with 40 CFR 264.

**CLEANUP STRATEGY**

Land use controls will continue for an indefinite amount of time and will be reevaluated periodically as prescribed by the post-closure care guidance.

Contingent upon final RCRA permit renewal, additional requirements may be necessary.

# WSMR-30

## STP SLUDGE WASTE PILE (MAIN POST)

### SWMU 80

#### SITE DESCRIPTION

WSMR-30 was the site of a waste pile consisting of soil/sludge/rubble that was created following a flash flood in 1978 that destroyed the sludge beds (SWMU 79). Sludge, excavated soils and sludge bed debris (e.g. reinforced concrete) were washed from the original sludge bed location and relocated approximately 100 ft to the southeast of the STP sludge beds active as of 2002. The pile was approximately 50 ft - 75 ft long with heights varying from 2 ft to 6 ft.

Between November 1994 and March 1995, sludge from the drying beds and the waste piles 2 ft below ground surface was excavated and containerized. Samples were collected of the sludge, analyzed and found to be within regulatory limits for disposal in the WSMR landfill (Dow, 1996).

A Class III Permit Modification petition for NFA was submitted on January 24, 2000. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including background metals study, confirmation sampling, and ecological risk assessment. This investigation recommenced in FY03 and is slated to be completed by FY06. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response. A WSMR response addressed these comments and the work plan was executed in FY05. A final RFI report is anticipated in FY06.

#### CLEANUP STRATEGY

Complete final RFI report in FY06. A petition for NFA (i.e., Response Complete) will occur following NMED approval of field activities. Costs for closeout activities for WSMR-30, 31, 32, 33, 36, 57, 60, 73, 74, 79, 84 will all be addressed under WSMR-30.

#### STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
Metals, Cyanide

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
<b>RFI/CMS .....</b>	<b>199205 .....</b>	<b>200606</b>
IRA.....	199507 .....	199508
LTM.....	200607 .....	200709

**RC DATE:** 200606

# WSMR-31 (PAGE 1 OF 2) MAIN POST FORMER FFTA & PIT SWMU 21

## SITE DESCRIPTION

WSMR-31 was the former fire fighting training area (FFTA) located at the southern end of Main Post. During operation of the training area, waste POLs were used to simulate fire emergencies. It is believed the unit was used in the early 1960's and deactivated in 1982 by the WSMR Environmental Services Division. At that time, the unit was excavated to a maximum depth of 8 ft in search of oil-contaminated soils. The unit contained two aboveground storage tanks (AST) on the southern boundary of the site and one partially buried tank on the eastern boundary of the site (i.e., underground storage tank or UST). The two ASTs reportedly held waste jet fuel and waste diesel fuel, while the partially buried tank was used as a holding tank for water. Based on analytical results of soil samples from the Phase II RFI (Sverdrup, 1994), the extent of contamination at SWMU 21 was limited horizontally to the area about the AST's and vertically to the upper 1 ft of soil.

The two ASTs and one UST were removed and disposed properly. On 29-30 January 1996, a 50 ft x 50 ft area was scraped to a depth of one foot below ground surface. The excavated soil was containerized in six roll-off containers for characterization sampling. In addition, six samples were collected six inches beneath the excavation floor. Results of the sampling characterized the roll-off containers and the excavation floor as non-hazardous. However, the TPH level from roll-off container #3 was 220 ppm and was disposed at the WSMR landfill. The remaining containers were used as backfill at the excavation. The closeout report recommended WSMR apply for closure of the site (Dow, 1997).

A Class III Permit Modification NFA petition was submitted to NMED on January 24. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including an ecological risk assessment. This investigation commenced in FY03 and is slated to be completed in FY06. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response.

## STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
TPH

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
<b>RFI/CMS .....</b>	<b>199607 .....</b>	<b>200709</b>
IRA.....	199607 .....	199608

**RC DATE:** 200709

# WSMR-31 (PAGE 2 OF 2) MAIN POST FORMER FFTA & PIT SWMU 21

## SITE DESCRIPTION

A WSMR response addressed these comments and the work plan was executed in FY05. An excavation occurred during FY05, 180 cys of petroleum contaminated soil was removed. A final RFI report is anticipated in FY06.

## CLEANUP STRATEGY

Complete final RFI report in FY06. A petition for NFA (i.e., Response Complete) will occur following NMED approval of field activities. Costs for closeout activities for WSMR-30, 31, 32, 33, 36, 57, 60, 73, 74, 79, 84 will all be addressed under WSMR-30.

# WSMR-32 MAIN POST FORMER FFTA WASTE PILE SWMU 22

## SITE DESCRIPTION

WSMR-32 was the abandoned soil piles from the old FFTA. The unit was approximately 25 ft by 50 ft.

On 24-30 January 1996, a 50 ft x 50 ft area was scraped to a depth of one foot below ground surface. The excavated soil was containerized in six roll-off containers for characterization sampling. In addition, six samples were collected six inches beneath the excavation floor. Results of the sampling characterized the roll-off containers and the excavation floor as non-hazardous. However, the TPH level from roll-off container #3 was 220 ppm and was disposed at the WSMR landfill. The remaining containers were used as backfill at the excavation. On 9 April 1996 the contents of the roll-off containers were returned to the excavation for use as backfill material. The area was leveled to match the existing terrain and hydro-seeded on 23 April 1996 with an approved seed mixture. The closeout report (Dow, 1997) documents the removal of SWMU 22 debris and the disposal of the non-hazardous material. The report recommended WSMR apply for closure of the site.

A Class III Permit Modification NFA petition was submitted on January 24, 2000. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including confirmation sampling and an ecological risk assessment. This investigation commenced in FY03 and is slated to be completed in FY06. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response. A WSMR response addressed these comments and the work plan was executed in FY05. A final RFI report is anticipated in FY06.

## CLEANUP STRATEGY

Complete final RFI report in FY06. A petition for NFA (i.e., Response Complete) will occur following NMED approval of field activities. Costs for closeout activities for WSMR-30, 31, 32, 33, 36, 57, 60, 73, 74, 79, 84 will all be addressed under WSMR-30.

## STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
TPH

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
IRA.....	199607 .....	199608
RFI/CMS .....	199609 .....	200709
CMI(C) .....	200409 .....	200709

**RC DATE:** 200709

# WSMR-33 (PAGE 1 OF 2)

## USED BATTERY ACCUM AREAS (MAIN POST)

### SWMU 14-15

#### SITE DESCRIPTION

WSMR-33 consisted of two used battery accumulation areas located immediately south (SWMU 14) and approximately 50 ft north (SWMU 15) of the battery shop (Building 1776) in the Main Post Maintenance Area. This open-air facility paved with asphalt was used for the accumulation and storage of batteries. A sump located on the east side of Building 1776 discharges to the Main Post Sewage Treatment Plant. An asphalt lined drainage ditch is also located east of Building 1776. Batteries are no longer stored here and the dates of former battery operations are unknown.

The Phase I and II RFI (IT Corp., 1992 and Sverdrup, 1994) reports both stated that there is no threat of a future release from these areas because they are no longer in use. It was recommended that the RFI be discontinued and a Class III Permit Modification NFA petition be submitted to amend the HSWA Corrective Action Module of the RCRA Part B Permit.

On 22 April 1997, all contents of the sump were removed, sampled, and characterized for proper disposal. The concrete apron and underlying soil on the south side of building 1776 was sampled on 24 April 1997 and determined to be non-hazardous. The concrete apron was demolished and removed on 30 May 1997. A new concrete apron was constructed on 5-10 June 1997 following a confirmation soil sample. From 22-24 April 1997, surface soil covering the drainage ditch was removed and sampled. The soil material was characterized as non-hazardous and disposed at the WSMR landfill. From 2-3 June 1997, asphalt was excavated to a depth of 18 in, containerized and sampled. The asphalt was disposed at the WSMR concrete and asphalt recycling area. Confirmation soil samples were collected from the drainage ditch and characterized as non-hazardous. The drainage ditch area was contoured, compacted and re-paved to match the original drainage ditch on 10-13 June 1997 (Radian, 1997).

A Class III Permit Modification NFA petition was submitted on January 24, 2000. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

#### STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
Metals

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
RFI/CMS .....	199407 .....	200709
IRA.....	199701 .....	199709

**RC DATE:** 200709

**WSMR-33 (PAGE 2 OF 2)**

## **USED BATTERY ACCUM AREAS (MAIN POST)**

### **SWMU 14-15**

#### **SITE DESCRIPTION**

The state disapproved the petition in March 2002. The state requested additional investigation including a background soil investigation and an ecological risk assessment. This investigation commenced in FY03 and is slated to be completed in FY06. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response. A WSMR response addressed these comments and the work plan was executed in FY05. A final RFI report is anticipated in FY06.

#### **CLEANUP STRATEGY**

Complete final RFI report in FY06. A petition for NFA (i.e., Response Complete) will occur following NMED approval of field activities. Costs for closeout activities for WSMR-30, 31, 32, 33, 36, 57, 60, 73, 74, 79, 84 will all be addressed under WSMR-30.

# WSMR-36 FORMER WASTE/OIL TANK & SUMP EAST BLDG 1794 SWMU 8-9

## SITE DESCRIPTION

WSMR-36 consists of a waste oil tank (SWMU 8) and sump (SWMU 9) located in the Motor Pool Maintenance Area approximately 300 ft east of Building 1794 on the Main Post. The site has been active since the 1950s. In 1990, the underground waste oil tank was replaced with a new aboveground platform-mounted 5,000-gal capacity steel tank encircled with an approximately 2 ft high concrete spillage containment wall. The sump, located just north of the tank, is a prism shaped metal box supported by four legs and is approximately 2 ft above grade. A metal grate to filter out debris covers the sump. Waste oil is transferred from the sump to the waste oil tank via a flexible hose. The waste oil is pumped from the tank and hauled off-site for disposal. In 1996, the existing AST was replaced with a new 4,000-gallons capacity concrete vaulted AST that is still currently being used.

## STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
POL

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
<b>RFI/CMS .....</b>	<b>199405 .....</b>	<b>200709</b>
IRA.....	199602 .....	199608

**RC DATE:** 200709

Remedial action for this site was completed by WSMR (Dow, 1997) and consisted of soil sampling and removal of the contaminated soils. Sampling analysis of the soil and the excavated floor tested as non-hazardous.

A Class III Permit Modification NFA petition was submitted on January 24, 2000 to NMED. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including an ecological risk assessment. This investigation commenced in FY03 and is slated to be completed in FY06. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response. A WSMR response addressed these comments and the work plan was executed in FY05. A final RFI report is anticipated in FY06.

## CLEANUP STRATEGY

Complete final RFI report in FY06. A petition for NFA (i.e., Response Complete) will occur following NMED approval of field activities. Costs for closeout activities for WSMR-30, 31, 32, 33, 36, 57, 60, 73, 74, 79, 84 will all be addressed under WSMR-30.

# TTF METHYLENE CHLORIDE SPILL AREA/VAPOR EXTRACTION SWMU 108

## SITE DESCRIPTION

WSMR-41 is the soil vapor extraction system associated with the Temperature Test Facility (TTF) Methylene Chloride (MeCl) spill area. This site is located approximately 2.5 mi east of the Main Post area.

The TTF was designed to simulate extreme weather conditions by inducing a wide range of temperature and climatic variations. After completion of construction in early 1984, the facility consisted of a main test building, several underground storage tanks (USTs) with ancillary piping, and a surface evaporation pond. The original refrigerant used to cool the test chamber was MeCl, which was recycled using the USTs. The surface evaporation pond was used to evaporate process wastewater generated as a by-product of freezing rain tests performed in the test building. The evaporation pond, excavated into the natural sandy soil, was approximately 70 ft wide and 150 ft long [surface area approximately 10,000 ft<sup>2</sup>], and lined with a High Density Polyethylene (HDPE) liner.

The TTF was originally designed to collect process wastewater in floor drains within the facility and discharge to the evaporation pond via underground pipes. In July 1983, prior to completion of construction, it was discovered that MeCl leaked within the TTF building and was subsequently flushed to the evaporation pond. The leakage occurred due to faulty seals in the coolant system.

In January 1985, it was discovered that the HDPE liner had eroded and leaked the pond's contents to the underlying soil. It was originally estimated that 6,400 lb of MeCl were released from the evaporation pond (GCL, 1987). A study performed by New Mexico State University in 1991 estimated the quantity of the MeCl released to the pond to be approximately 924 lb (NMSU, 1991).

However, additional leaks due to faulty seals in the USTs and ancillary piping released an unknown amount into the sub-surface.

Studies performed at the site indicated that contamination migrated to a depth of approximately 100 ft below ground surface within sandy material.

## STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
MeCL, Solvents

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA .....	198805 .....	198808
CS .....	198805 .....	198808
RFI .....	199405 .....	199501
DES .....	199501 .....	199502
IRA .....	198806 .....	198808
CMI(C) .....	199503 .....	199505
CMI(O) .....	199505 .....	200709

**RIP DATE:** 199505

**RC DATE:** 200709

**TTF METHYLENE CHLORIDE SPILL AREA/VAPOR EXTRACTION  
SWMU 108****SITE DESCRIPTION**

A thick clay layer located below the MeCl prevents the downward migration of MeCl to groundwater, which resides at approximately 225 ft below ground surface.

WSMR installed an impermeable cap covering soil contamination beneath the evaporation pond and surrounding area in 1990 with approval from the NMED HWB. In 1991, TTF personnel replaced MeCl with Syltherm, an environmentally “safer” heat exchange liquid, as the primary coolant at the facility. Additionally, the coolant system was re-engineered to prevent releases.

In April 1995, WSMR installed a soil vapor extraction system (IRP site WSMR-41) to remove MeCl from the subsurface. The unit consisted of a 500 ft<sup>3</sup> per minute positive displacement vacuum blower with a piping and manifold system connected to soil gas monitoring wells. A granular activated carbon (GAC) absorption treatment system was also constructed to treat extracted VOCs prior to discharge to the atmosphere. The clean-up goal for this operation is MeCl concentrations at or less than 50 ppm at the inlet to the soil vapor extraction system. The highest concentration of MeCl extracted from the sub-surface was immeasurable (0.0 ppm) using a portable Flame Ionization Detector. During the summer of 1998, WSMR completed two confirmatory soil borings to determine MeCl concentrations remaining within the soil matrix. MeCl was not detected in any of the soil samples collected from the borings.

In accordance with a September 1993 NMED Post-Closure Care Permit (PCCP), WSMR performs monthly groundwater measurements and inspection of the impermeable cap, and semi-annual groundwater monitoring. Monthly monitoring and inspection activities include the following:

- Measurement of depth to groundwater and total well depth within each of the seven monitoring wells located at the TTF;
- Inspection of the RCRA cap, well condition, and surrounding area; and,
- Completion of the Monthly Post-Closure Care Inspection Sheets.

Additionally, WSMR performs semi-annual groundwater monitoring. Groundwater samples are collected from the four monitoring wells (E1, E2, E3, and E4), and submitted to two separate analytical laboratories for volatile organic compound (VOC). No VOCs have been detected in the groundwater samples.

WSMR submitted a PCCP renewal application in March 2003. However, in September 2004, WSMR submitted a clean closure proposal to the NMED. The proposal was the result of a cooperative effort with the state to demonstrate that the site had been remediated. This clean closure work plan was approved and executed during FY05. It included additional soil and vapor samples in which minor concentrations of MeCL were detected. The report was submitted to NMED and WSMR is awaiting their review. As a result of this clean closure activity, the state's review of the PCCP renewal application is on hold.

Although NMED HWB is currently reviewing the request WSMR received verbal approval for ceasing operation of the vapor extraction system in November 2002. The vapor extraction system was dismantled during January 2003. Abandonment of the vapor extraction wells will be performed at a later date once a future direction is approved by the NMED.

**TTF METHYLENE CHLORIDE SPILL AREA/VAPOR EXTRACTION  
SWMU 108**

**CLEANUP STRATEGY**

Pursue clean closure proposal implementation in FY06. Based on the results of CS (confirmatory sampling) CMI(O) may continue, but is not anticipated. Cap maintenance will continue monthly through FY06. All thirty-eight wells (includes 34 extraction and 4 monitoring wells) will be abandoned in FY07.

# WSMR-52 (PAGE 1 OF 2) FORMER HELSTF LANDFILL SWMU 38-39

## SITE DESCRIPTION

WSMR-52 consists of two construction landfills located east of the HELSTF - High Energy Laser System Test Facility in the southern section of WSMR. Both landfills were in operation from the early 1960s to 1989. The RFA (A.T. Kearney, 1988) described the landfills as two unlined trenches approximately 300 ft x 50 ft x 8 ft. They reportedly received non-hazardous construction waste including wood, piping material, paper, and insulation.

The Phase I RFI (IT Corp., 1992) included a geophysical survey, surface sediment sampling, and a soil vapor survey (SVS). Analysis of the sediment samples did not show significant levels of contaminants of concern.

The Phase II RFI (Sverdrup, 1994) included a SVS, soil sampling, and groundwater sampling in and around SWMUs 38 and 39. The SVS did not detect any constituents of concern above detection limits. Chromium was detected during the groundwater investigation at 1.3 mg/L above the Federal Maximum Contaminant Level (MCL) of 0.1 mg/L.

Chromium was also detected above its MCL at 1.30 mg/L in samples collected during the Spring 2000 groundwater-sampling event. Semi-annual groundwater monitoring continues at WSMR-52 and has so since 1997. Currently, five wells are monitored and sampled for various constituents at WSMR-52. Data indicates that the area remains impacted from previous releases.

The previous investigations showed no evidence of erosion, discoloration, or contamination of surface soils. The waste received at this site (wood, piping material, paper, and insulation) does not correspond to the types of potential contaminants detected. This may indicate vapor phase constituents from another source migrating to this area or disposal of items not previously identified.

WSMR-52 is one of several sites being addressed under the Phase III RFI currently funded under IRP site WSMR-85. A Conceptual Site Model (CSM) has been developed as part of WSMR-85 efforts. The CSM considers HELSTF as a single corrective action unit for the purpose of evaluating and determining appropriate remedial options. The CSM was developed using the best available geologic and hydrogeologic information to illustrate the relationships between the different sources of contamination and groundwater.

## STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Medium

**CONTAMINANTS OF CONCERN:**  
Heavy Metals (Chromium)

**MEDIA OF CONCERN:** Soil,  
Groundwater

Phases	Start	End
RFA .....	198805 .....	198808
CS .....	198805 .....	198808
<b>RFI/CMS .....</b>	<b>199103 .....</b>	<b>200909</b>
DES .....	200910 .....	201003
CMI(C) .....	200910 .....	201009
LTM .....	201010 .....	204009

**RC DATE:** 201009

**WSMR-52 (PAGE 2 OF 2)**  
**FORMER HELSTF LANDFILL**  
**SWMU 38-39**

**SITE DESCRIPTION**

The Phase III RFI under WSMR-85 commenced in FY03 and will investigate all HELSTF sites under one study as directed by the NMED (1996). WSMR-52 is included in this Phase III RFI. The final Phase III work plan is currently awaiting state review.

**CLEANUP STRATEGY**

Continue with semi-annual groundwater monitoring and investigate this site under the Phase III RFI being conducted and funded under WSMR-85 (BAE, 2004d).

Identify and implement remedial alternatives following the completion of a WSMR-85 corrective measures study (CMS) scheduled to be completed by FY10. If a remedial action is required, it will be addressed and funded under this site. The assumed remedial action is capping the site to include land use controls (fencing, site restriction).

Complete a decision document under WSMR-85 to cover WSMR-52, 53, 54, 55, 78 and 83 in FY10.

Any long term groundwater monitoring (previous monitoring has occurred at individual sites 52, 54 and 55) will be funded under WSMR-85.

Maintenance of land use controls will occur for an indefinite amount of time and will be funded under WSMR-52.

# WSMR-53 (PAGE 1 OF 2)

## HELSTF TEST CELL 4 LAGOON

### SWMU 145

#### SITE DESCRIPTION

WSMR-53 consisted of Test Cell 4 Lagoon located approximately 600 ft west of the sewage lagoons (SWMUs 27-30) in the south central section of HELSTF. The dimensions of the unit were 105 ft x 60 ft x 6 ft. The unit had a single 6-mil hypalon liner with no secondary containment. The original purpose for the lagoon was for the discharge of laser effluent from Test Cell 4. The laser was never installed; therefore, the lagoon was never used for its original purpose.

In 1989, a one-time discharge of 30,000 gal of sodium fluoride and sodium hydroxide wastewater from the Test Cell 1 pressure recovery system was released into the lined lagoon. The liner failed and the wastewater leaked into the ground.

A Phase I RFI (I.T. Corp., 1992) was conducted in 1992 and included a composite sediment sample from within the lagoon, a background soil sample, and installation of a groundwater monitoring well (HMW-09). Low levels of naturally occurring arsenic and fluoride were detected in the background sample. The composite sediment sample contained low levels of lead, arsenic, fluoride, and TPH at or below detection limits and/or regulatory limits. The ground-water sample revealed concentrations of selenium and fluoride at background levels and chloroform below action levels. The RFI recommended that WSMR submit a Class III Permit Modification for no further action at this site.

A Phase II RFI (Sverdrup, 1994) was conducted in 1994 and included the installation of three monitoring wells (HMW-44, HMW-45, and HMW-46). Soil samples were collected during the installation of the wells at 20 ft intervals and analyzed for VOCs, SVOCs, RCRA metals, and fluoride. VOCs and SVOCs were not detected. Detected concentrations of metals including arsenic, barium, chromium, lead, silver, and fluoride were at or below background/regulatory levels. Ground-water samples were collected from HMW-9, HMW-44, HMW-45, and HMW-46 and analyzed for VOCs, SVOCs, metals, fluoride, TDS, TPH, and hexavalent chromium. 1,1-Dichloroethene, lead, selenium, and fluoride exceeded their respective MCLs.

#### STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
Metals

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
<b>RFI/CMS .....</b>	<b>199206 .....</b>	<b>200809</b>
IRA.....	199606 .....	199607

**RC:** 200809

**WSMR-53 (PAGE 2 OF 2)**  
**HELSTF TEST CELL 4 LAGOON**  
**SWMU 145**

**SITE DESCRIPTION**

Following the Phase II RFI, remedial action was conducted at SWMU 145 to remove the lagoon and excavate possible contaminated soil. During April 1996, the liner and two feet of soil beneath were removed, containerized and sampled for characterization. In addition, nine confirmation samples were collected from a depth of two to three feet beneath the excavation floor. All samples were characterized and determined to be non-hazardous. The lagoon subsequently backfilled during May 1996. The area was graded and paved in August 1996 to minimize precipitation infiltration into the area. The close out report documenting site cleanup recommended that WSMR apply for closure of the site (Dow, 1997).

A Class III Permit Modification NFA petition was submitted on January 24, 2000 to NMED to remove this site from the HSWA Corrective Action Module of the RCRA Part B Permit. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including a background soil investigation and an ecological risk assessment. **This investigation will be a part of the Phase III RFI at WSMR-85.**

The Phase III RFI under WSMR-85 commenced in FY03 and will investigate all HELSTF sites under one study as directed by the NMED (1996). WSMR-53 is included in this Phase III RFI. The final Phase III work plan is currently awaiting state review.

**CLEANUP STRATEGY**

Investigation of this site is included in the Phase III RFI for HELSTF being conducted under WSMR-85 (BAE, 2004d).

Complete a decision document under WSMR-85 to cover WSMR-52, 53, 54, 55, 78 and 83 in FY10.

Anticipate No Further Action.

All funding will be addressed under WSMR-85.

# WSMR-54 (PAGE 1 OF 2)

## HELSTF CHROMATE SPILL SITE

### SWMU 143

#### SITE DESCRIPTION

WSMR-54 consists of a hexavalent chromium spill (SWMU 143) located at the east corner of the HELSTF Equipment Storage Area (SWMU 141). This site is the result of an accidental spill that occurred in the early 1980's when unused Entec 300, a hexavalent chromium ( $\text{Cr}^{+6}$ ) based corrosion inhibitor, was accidentally released into the soil from leaking 55-gallon storage drums.

The Phase I RFI (IT Corp., 1992) indicated slightly elevated total chromium concentrations (up to 14 mg/kg) from soil borings in the spill area. A groundwater sample showed hexavalent chromium, total chromium, and 1,1-dichloroethylene levels exceeding Federal and State maximum contaminant levels (MCLs) and State groundwater protection standards.

The Phase II RFI (Sverdrup, 1994) indicated chromium contamination (total dissolved and hexavalent) in nearby monitoring wells, exceeding the Federal and State MCLs and the State groundwater protection standards. In addition, 6 solvent type organic compounds (BTEX) were also detected. These compounds were attributed to the neighboring diesel spill (IRP site WSMR-55; SWMU-154).

Semiannual groundwater monitoring continues at WSMR-54 and has so since 1995. Data indicates that the area remains impacted from previous releases. Currently, nine wells are monitored and sampled for various constituents at WSMR-54.

Preliminary remedial efforts at this site included partial excavation of the contaminated soil and in-situ gaseous reduction (pilot study). The reduction pilot study, conducted by the Pacific Northwest National Laboratory and funded by the Department of Energy (DOE, 1999), involved injecting diluted hydrogen sulfide to immobilize and reduce the hexavalent chromium to its non-toxic trivalent form. This project resulted in the successful reduction of at least 70 % of the hexavalent chromium to trivalent chromium.

WSMR-54 is one of several sites being addressed under the Phase III RFI currently funded under IRP site WSMR-85.

#### STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Medium

**CONTAMINANTS OF CONCERN:**  
Metals, Solvents

**MEDIA OF CONCERN:**  
Soil, Groundwater

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
<b>RFI/CMS .....</b>	<b>199103 .....</b>	<b>200909</b>
DES .....	200910 .....	201009
IRA.....	199808 .....	199812
CMI(C) .....	201010 .....	201109
CMI(O) .....	201109 .....	202109

**RIP DATE:** 201109

**RC DATE:** 202109

**WSMR-54 (PAGE 2 OF 2)**  
**HELSTF CHROMATE SPILL SITE**  
**SWMU 143**

**SITE DESCRIPTION**

A Conceptual Site Model (CSM) has been developed as part of WSMR-85 efforts. The CSM considers HELSTF as a single corrective action unit for the purpose of evaluating and determining appropriate remedial options. The CSM was developed using the best available geologic and hydrogeologic information to illustrate the relationships between the different sources of contamination and groundwater.

The Phase III RFI under WSMR-85 commenced in FY03 and will investigate all HELSTF sites under one study as directed by the NMED (1996). WSMR-54 is included in this Phase III RFI. The final Phase III work plan is currently awaiting state review.

**CLEANUP STRATEGY**

Continue monitoring 9 wells semi-annually (funded under this site until FY10)

Investigate this site under the Phase III RFI being conducted under WSMR-85 (BAE, 2004d).

Identify and implement remedial alternatives following the completion of a WSMR-85 corrective measures study (CMS) scheduled to be completed by FY10.

Assumed remedial action includes groundwater extraction wells, metals precipitation, air stripping, and carbon adsorption. Operation of the system for 10 years beginning in FY12.

Injection of hydrogen peroxide is the presumptive remedy for contamination in soil

Complete a decision document under WSMR-85 to cover WSMR-52, 53, 54, 55, 78 and 83 in FY10.

Any long term groundwater monitoring (previous monitoring has occurred at individual sites 52, 54 and 55) will be funded under WSMR-85.

# WSMR-55 (PAGE 1 OF 2)

## HELSTF SYSTEMIC DIESEL SPILL

### SWMU 154

#### SITE DESCRIPTION

WSMR-55 is located in the vicinity of the HELSTF Cleaning Facility (HCF) (SWMU 142), Building 26131, and consists of subsurface diesel contamination. The diesel spill was discovered during the investigation of the HCF (CCWS-05 SWMU 142) where a drain line leading to a sump failed resulting in the release of spent cleaning solvents. During the investigation of the HCF, a large volume of diesel fuel in solution with the cleaning solvents was discovered. The diesel fuel came from a 30,000 gallon UST that provided fuel to the HCF through a 2 inch underground steel pipeline. The pipeline failed when portions of it were corroded by the naturally occurring alkaline soil in the HELSTF area.

The UST was removed in April of 1988. An IRA was initiated in 1993 that included installation of wells designed to recover separate phase diesel fuel floating on the shallow perched water-bearing zone (Tetra Tech, 1994). The remediation system consists of a Vacuum Enhanced Diesel Recovery System (VEDRS). WSMR is currently evaluating this system and considering other potential options

to increase product recovery at this site that includes replacing the existing system with a more efficient and cost effective alternative.

Semiannual groundwater monitoring continues at WSMR-55 and has so since 1998. Data indicates that the area remains impacted from previous releases. Currently, 11 wells are monitored and sampled for various constituents at WSMR-55. During FY05, sampling efforts are being modified slightly to include evaluation of the adjacent and commingled contamination plume related to SWMU 142, the HCF. In years past, SWMU 142 was monitored by the USGS in a separate effort that was duplicative to that occurring at WSMR-55. As part of the overall effort to environmentally investigate and manage the HELSTF area holistically, it was determined that combining these GWM efforts would be beneficial to both the Army and the NMED.

WSMR-55 is one of several sites being addressed under the Phase III RFI currently funded under IRP site WSMR-85. A Conceptual Site Model (CSM) has been developed as part of WSMR-85 efforts.

#### STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Medium

**CONTAMINANTS OF CONCERN:**  
Diesel

**MEDIA OF CONCERN:**  
Soil, Groundwater

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
RFI.....	199206 .....	199407
DES .....	200910 .....	201009
IRA.....	199408 .....	200909
CMI(C) .....	201010 .....	201109
CMI(O) .....	201109 .....	202112

**RIP DATE:** 201109

**RC DATE:** 202112

**WSMR-55 (PAGE 2 OF 2)**  
**HELSTF SYSTEMIC DIESEL SPILL**  
**SWMU 154**

**SITE DESCRIPTION**

The CSM considers HELSTF as a single corrective action unit for the purpose of evaluating and determining appropriate remedial options. The CSM was developed using the best available geologic and hydrogeologic information to illustrate the relationships between the different sources of contamination and groundwater.

The Phase III RFI under WSMR-85 commenced in FY03 and will investigate all HELSTF sites under one study as directed by the NMED (1996). WSMR-55 is included in this Phase III RFI. The final Phase III work plan is currently awaiting state review.

Due to the commingling nature of the HCF (CCWS-05) and WSMR-55, any future actions will address both sites and be funded under the IRP.

**CLEANUP STRATEGY**

IRA (dual phase extraction/skimmer pumps) continues.

Continue monitoring 11 wells semi-annually (funded under this site until FY10)

Investigate this site under the Phase III RFI being conducted under WSMR-85 (BAE, 2004d).

In addition, use the obtained GWM data to evaluate releases from SWMU 142.

Identify and implement remedial alternatives following the completion of a WSMR-85 corrective measures study (CMS) scheduled to be completed by FY12.

Assumed remedial action will be air sparging, soil vapor extraction and in-situ biodegradation. Operation of the system for 10 years beginning in FY10

Complete a decision document under WSMR-85 to cover WSMR-52, 53, 54, 55, 78 and 83 in FY10.

Any long term groundwater monitoring will be funded under WSMR-85.

# WSMR-57 FORMER GOLF COURSE PESTICIDE STORAGE SHED SWMU 156

## SITE DESCRIPTION

WSMR-57, Building T-1348, was located at the Main Post Golf Course. This site consisted of a Butler-Style metal building with a wooden floor. The building was used for more than 30 years to store pesticide, fungicide, and pesticide application equipment. The building was removed and the wooden flooring was stored in a pile on the concrete foundation of the former structure. A plastic cover was placed over the debris pile. The foundation dimensions measured 20 ft x 50 ft. RFI (IT Corp., 1992 and Sverdrup, 1994) findings indicated the presence of low level VOCs and pesticides in the area.

Prior to remedial activities, 10 soil samples were collected at depths of 0-1 ft and 1-2 ft below ground surface in 5 soil borings at the storage shed site. Two composite wood samples were collected from the stored wood debris. All samples were characterized as non-hazardous.

The concrete foundation, wood floor, plastic cover, and two feet of soil taken from the building footprint were disposed at the WSMR landfill on 24 February 1995. Three confirmatory soil samples were collected from the building footprint and analyzed. Constituents detected were below regulatory limits (Dow, 1996).

A Class III Permit Modification NFA petition was submitted on January 24, 2000. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not comment on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including an ecological risk assessment. This investigation commenced in FY03 and is slated to be completed in FY06. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response. A WSMR response addressed these comments and the work plan was executed in FY05. A final RFI report is anticipated in FY06.

## CLEANUP STRATEGY

Complete final RFI report in FY06. A petition for NFA (i.e., Response Complete) will occur following NMED approval of field activities. Costs for closeout activities for WSMR-30, 31, 32, 33, 36, 57, 60, 73, 74, 79, 84 will all be addressed under WSMR-30.

## STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Medium

**CONTAMINANTS OF CONCERN:**  
Pesticides, Fertilizers

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
<b>RFI/CMS .....</b>	<b>199204 .....</b>	<b>200709</b>
IRA.....	199508 .....	199508

**RC DATE:** 200709

# WSMR-60

## WASH RAMP & DRAIN/SUMP EAST OF BLDG 1778

### SWMU 12-13

#### SITE DESCRIPTION

WSMR-60 consists of the vehicle wash ramp and drains, and the sump and oil/water separator situated east of Building 1778 and west of Building 1776 in the Main Post Maintenance Area. The units have been active since the mid 1950s. The vehicle wash ramp (SWMU 12) consists of a concrete pad approximately 40 ft long and 15 ft wide with an open metal work ramp erected above the concrete pad. The pad slopes toward the drain (at the center of the pad) that discharges into a 200 gallon sump and oil/water separator (SWMU 13) at the south end of the drain. The separator/sump is constructed of reinforced concrete and covered by a metal grate. Separation of water, oil and debris is accomplished by gravity. The waste oil and debris from the sump/separator are periodically transferred to the waste oil tank (SWMUs 8 and 9) while rinse water is piped to the STP (SWMUs 66-78).

Both Phase I (IT Corp., 1992) and Phase II (Sverdrup, 1994) RFIs found no significant release of contaminants at this site. The ramp portion of the facility was dismantled in 1997 and removed as scrap.

A Class III Permit Modification NFA petition was submitted on January 24, 2000. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including a background soil investigation and an ecological risk assessment. This investigation commenced in FY03 and is slated to be completed in FY06. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response. A WSMR response addressed these comments and the work plan was executed in FY05. A final RFI report is anticipated in FY06.

#### CLEANUP STRATEGY

Complete final RFI report in FY06. A petition for NFA (i.e., Response Complete) will occur following NMED approval of field activities. Costs for closeout activities for WSMR-30, 31, 32, 33, 36, 57, 60, 73, 74, 79, 84 will all be addressed under WSMR-30.

#### STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
POLs, Solvents

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA .....	198805 .....	198808
CS .....	198805 .....	198808
RFI/CMS .....	199206 .....	200709

**RC DATE:** 200709

**FORMER MAIN POST LANDFILL #3 (SCRAPYARD)****SWMU 65****SITE DESCRIPTION**

WSMR-61 is a former landfill (SWMU 65) located in the southeast portion of Main Post. This site reportedly operated from 1965 to 1982. Since becoming inactive, the northern portion of the landfill was fenced and used as the WSMR scrap metal accumulation point until it was closed in June 2000. The site area is approximately 55 acres.

No historical information is available on the design, construction or operating procedures of this unit. Additionally, no documentation of a release from this unit was found.

Four monitoring wells were installed during the Phase II RFI (Sverdrup, 1994). This investigation indicated that no release of contaminants has occurred. WSMR concluded that the RFI for SWMU 65 be discontinued since no release of contaminants could be identified at the site.

Conclusions of the Phase II recommended that a request for a Class III Permit Modification be submitted by WSMR to terminate the RFI/CMS for the unit. However, it was recommended and decided that the SWMU be monitored semi-annually because of its proximity to the freshwater aquifer utilized by WSMR. WSMR conducted GWM activities from 1996 until 2001 and ceased after submitting the June 2001 RFI report described below.

A review, completed in September 2000, determined that no human or environmental risk exists at the site. WSMR completed the final RFI report during June 2001 to document all actions at this site. Since no risk has been identified, the original remedial action plan to place an additional cap on the landfill has been abandoned.

In July 2003, WSMR received state comments on the June 2001 RFI report. NMED requested supplemental information pertaining to the RFI report. The state requested information on background soil metals, TPH levels in groundwater and a reevaluation of the groundwater monitoring system. WSMR is currently developing a work plan to address NMED's concerns.

**STATUS**

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
VOCs, SVOCs, Metals, TPH

**MEDIA OF CONCERN:**  
Soil, Groundwater

<b>Phases</b>	<b>Start</b>	<b>End</b>
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
<b>RFI/CMS .....</b>	<b>199103 .....</b>	<b>200809</b>
DES .....	200810 .....	200903
CMI(C) .....	200810 .....	200909
LTM.....	200910 .....	203409

**RC DATE:** 200909

# **FORMER MAIN POST LANDFILL #3 (SCRAPYARD)**

## **SWMU 65**

### **SITE DESCRIPTION**

In general, NMED's concerns include alleged deficiencies concerning soil and groundwater background concentrations, total petroleum hydrocarbons levels detected in groundwater and detections of VOCs, SVOCs, TPH and metals in soil. A total of eight comments were received from NMED in their 14 July 2003 letter. WSMR response includes a background soil study, groundwater sampling and evaluation of the groundwater monitoring system. NMED has requested that additional down gradient monitoring wells be installed. However, an evaluation of the existing groundwater monitoring system will determine the exact needs for additional wells. The work plan will be submitted to NMED during FY06.

### **CLEANUP STRATEGY**

WSMR will address the state's comments on the June 2001 RFI report. Fieldwork will commence immediately following work plan approval is received from the state.

Potential remedial action could include a 55 acre soil cover, cap maintenance, and land use controls for an indefinite amount of time.

Groundwater monitoring for 25 years.

# WSMR-62 (PAGE 1 OF 3)

## FORMER STP PERCOLATION DITCHES (2)

### SWMU 82-83

#### SITE DESCRIPTION

WSMR-62 consists of two excavated soil ditches located immediately east of the WSMR Sewage Treatment Plant (STP) and approximately 2 miles east of Main Post. These ditches were used from 1958 until 1986 as discharge trenches for STP effluent. Effluent from the STP has been discharged to the Davies Tank playa lake since closure of the percolation ditches in 1986.

The north drainage ditch (SWMU 82) extends from the STP headgate approximately 1,000 ft to a dry impoundment approximately 600 ft x 600 ft x 12 ft. This impoundment was reportedly constructed as an infiltration/evaporation pond for the STP wastewater. The south drainage ditch (SWMU 83) originates at the STP adjacent to the north drainage ditch. This ditch flowed easterly approximately 500 ft to a natural shallow depression.

A Phase I RFI (IT Corp., 1992) was conducted at SWMUs 82 and 83. Forty-one soil samples were collected along the length of the drainage ditches and analyzed for VOCs, SVOCs, metals, and total cyanide. Only chromium (collected at 1-ft depth) was detected above action levels.

During the Phase II RFI (Sverdrup, 1994) eighteen soil samples were collected from nine locations along the length of the ditches. All samples were analyzed for RCRA metals and total cyanide. Total chromium was detected below the hexavalent chromium Subpart S level of 400 mg/kg. Groundwater samples collected from a nearby United States Geological Survey (USGS) monitoring well (T-29) indicated total cyanide (0.229 mg/L) above federal and state action levels (0.2 mg/L).

Remediation of SWMUs 82 and 83 included the excavation of approximately 4,000 yds<sup>3</sup> of soil from the two ditches during May-June 1997. The excavated soil was characterized by chemical analysis as non-hazardous and disposed at the Main Post Landfill. Following excavation, the area was graded to blend with the adjoining area. A total of 149 confirmation soil samples were collected from the ditches and the playa lake area during June 1997. The samples were analyzed and characterized as non-hazardous (Radian, 1997).

Five groundwater sampling events were conducted between August 1996 and February 1997. Groundwater samples were collected from monitoring wells up gradient and down gradient from WSMR-62.

#### STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
Cyanide

**MEDIA OF CONCERN:**  
Groundwater

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
RFI/CMS .....	199103 .....	200909
CMI(C) .....	200503 .....	200909
CMI(O) .....	200910 .....	203009

**RIP DATE:** 200909

**RC DATE:** 203009

**WSMR-62 (PAGE 2 OF 3)**

## **FORMER STP PERCOLATION DITCHES (2)**

### **SWMU 82-83**

#### **SITE DESCRIPTION**

These wells were installed under a separate work effort to establish background water quality at the Main Post Landfill in compliance with New Mexico Solid Waste Management Regulations and in support of a solid waste landfill permitting application. A full baseline analysis was performed that indicated concentrations of cyanide in excess of the New Mexico Water Quality Control Commission (NMWQCC) and EPA standards (0.2 mg/L) for cyanide in groundwater.

A risk assessment of the site was conducted during 1999 that evaluated the potential for exposure to contaminants. Constituents detected were compared to USEPA Region IX PRGs. Aluminum, fluoride, iron, lead, nitrate, nitrite and cyanide were detected above their respective PRGs and were determined to require further risk evaluation. Estimates of potential exposure levels were formulated and an evaluation of toxicity for those estimates was conducted. A hazard index greater than 1.0 is considered an unacceptable risk. Hazard indices for the detected constituents were all less than 1.0 using an industrial land-use scenario. Only cyanide had a hazard index greater than 1.0 for a residential scenario. It is not anticipated that this site will be developed for residential use, nor is it anticipated that a production well for drinking water would ever be installed. [Note: However, current NMED policy requires risk assessments be conducted using a residential scenario.]

An investigation of cyanide contamination in groundwater was initiated to delineate the lateral and vertical extent of groundwater contamination. Six monitoring wells were drilled in the Main Post Landfill/STP area, sampled, and analyzed for total cyanide and a suite of sewage effluent-related constituents. The delineation study was inconclusive and an additional 17 monitoring wells were drilled; 11 groundwater interface wells and 6 wells designed to monitor water-bearing zones below the groundwater interface. A Draft Site Characterization Report was filed on 26 February 1999 with NMED. The wells were sampled semi-annually through 1999. Cyanide and effluent-related constituent concentrations were monitored to help determine necessity and feasibility of remedial action.

A CMS evaluating available technologies for remediation of the groundwater contamination was filed with NMED on 21 August 2000. The CMS recommended that monitored natural attenuation (MNA) was the best current technology for remediating the site. Quarterly groundwater monitoring occurred between 2000 and 2001 of 35 monitoring wells. Since 2002, approximately 30 wells have been monitored semi-annually.

WSMR received state comments on the CMS in July 2003. The comments were in the form of a Notice of Deficiency (NOD) requesting additional data to support a WSMR recommendation to implement a monitored natural attenuation action plan. WSMR and the NMED agreed that an addendum to the August 2000 CMS would be adequate to address the NOD. The CMS Addendum, dated January 2004, was submitted to NMED the same month (BAE, 2004a). NMED responded in July 2004 stating that evidence justifying MNA was inadequate and requested the installation of additional wells. The monitoring wells were installed in early 2005 per NMED direction.

**WSMR-62 (PAGE 3 OF 3)**

**FORMER STP PERCOLATION DITCHES (2)**  
**SWMU 82-83**

**SITE DESCRIPTION**

Following an August 2004 WSMR response which recommended continuing GWM activity for five years in order to gather more data to support the MNA proposal, NMED responded (November 2004) granting WSMR permission to conduct such GWM activity until August 2005. Additional groundwater samples were taken in 2005 and a second CMS Addendum recommending MNA was submitted to NMED in Oct 2005 for consideration. NMED provided its review of this Addendum as well as past GWM reports. Once again, NMED rejected WSMR's MNA proposal. In a 7 March 2006 letter, NMED provided 12 comments in support of their rejection including requiring WSMR to expand their GWM activities by reinstituting four "T-Wells" (T-29, T-34, T-35 and T-37) into the GWM program. [WSMR had removed these wells in 2004 for several reasons including their questionable construction. However, WSMR's draft response (at the time of this IAP update) declined to re-institute the wells. WSMR will recommend their abandonment.

**CLEANUP STRATEGY**

Continue semi-annual groundwater monitoring at WSMR-62 in support of the MNA proposal.

It is presumed that MNA (semi-annual monitoring of 30 wells) will be the final remedy for this site.

Well abandonment will occur in 2010 (4 T-wells).

# WSMR-73 (PAGE 1 OF 2)

## WASTE UNDERGROUND INJECTION PIPE

### SWMU 17

#### SITE DESCRIPTION

WSMR-73 was the suspected site of a former underground injection pipe located at the southwest corner of Building 1753, the Heavy Equipment Maintenance Shop. No information was available on the dates of operation, physical parameters, or depth of burial. According to the RFA (A.T. Kearney, 1988), this pipe was placed in the ground in a vertical position allowing for liquid wastes (e.g. waste oils and degreasing solvents) to be poured into the open end.

During the Phase I RFI (I.T. Corp., 1992), a SVS was performed which detected only CO<sub>2</sub> at near background levels. In an attempt to locate the pipe, a metal detector was used over a 50 ft x 50 ft grid in the pipe's supposed location. The pipe was suspected to have been located despite some subsurface interference.

During the Phase II RFI (Sverdrup, 1994) soil sampling and a soil vapor survey were conducted at the suspected pipe location as described in the Phase I RFI. The survey and sampling did not reveal evidence of contamination from the former injection pipe and could not confirm that the pipe ever existed. It was determined that further remedial action was not necessary and that a Class III Permit Modification should be completed.

A Class III Permit Modification NFA petition was submitted on January 24, 2000. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including a background soil investigation and an ecological risk assessment. This investigation commenced in FY03 and is slated to be completed in FY06. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response. A WSMR response addressed these comments and the work plan was executed in FY05. A final RFI report is anticipated in FY06.

#### CLEANUP STRATEGY

Complete final RFI report in FY06. A petition for NFA (i.e., Response Complete) will occur following NMED approval of field activities.

#### STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
TPH, Solvents

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
RFI/CMS .....	199205 .....	200709

**RC DATE:** 200709

**WSMR-73** (PAGE 2 OF 2)

**WASTE UNDERGROUND INJECTION PIPE**

**SWMU 17**

**CLEANUP STRATEGY**

Costs for closeout activities for WSMR-30, 31, 32, 33, 36, 57, 60, 73, 74, 79, 84 will all be addressed under WSMR-30.

**WSMR-74 (PAGE 1 OF 2)**

**FORMER WASTE OIL TANK/SUMP @ BLDG 1778**  
**SWMU 10-11**

**SITE DESCRIPTION**

WSMR-74 consists of a vehicle wash pad and drains (SWMU 10), and the sump and oil/water separator (SWMU 11) situated west of Building 1778 in the Main Post Area. The units are thought to have been in operation since the mid-1950s. The concrete wash pad, 30 ft x 30 ft, is encompassed by a 2 ft x 2 ft drain covered with a metal grate. The drain is constructed of concrete and slopes towards the 500-gal sump and oil/water separator located at the northwest corner of the vehicle wash pad. The separator is constructed of concrete and covered by a metal grate. Separation of water, oil, and debris is accomplished by gravity. The water is discharged to the sewage treatment plant (SWMUs 66-78) while the oil and debris are periodically transferred to the waste oil storage tank.

The Phase I RFI (I.T. Corp., 1992) included a SVS and the collection of one surface sediment sample from an asphalt lined drainage ditch into which effluent from SWMUs 10-11 formerly drained via a buried pipe. A shallow background soil sample was also collected. The Phase I RFI concluded that the data do not indicate a release of contaminants.

The Phase II RFI (Sverdrup, 1994) included a SVS and soil sampling at the site. No evidence of contamination from the wash pad, drains or sump was revealed. A Class III Permit Modification was recommended.

A Class III Permit Modification NFA petition was submitted on January 24, 2000. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including an ecological risk assessment. This investigation commenced in FY03 and is slated to be completed in FY06. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response. A WSMR response addressed these comments and the work plan was executed in FY05. A final RFI report is anticipated in FY06.

**STATUS**

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
Metals, POL, Solvents

**MEDIA OF CONCERN:** Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
RFA.....	198805 .....	198808
CS.....	199003 .....	199003
<b>RFI/CMS .....</b>	<b>199205 .....</b>	<b>200709</b>
IRA.....	199003 .....	199003

**RC DATE:** 200709

**WSMR-74** (PAGE 2 OF 2)

**FORMER WASTE OIL TANK/SUMP @ BLDG 1778**

**SWMU 10-11**

**CLEANUP STRATEGY**

Complete final RFI report in FY06. This site is funded under WSMR-30.

A petition for NFA (i.e., Response Complete) will occur following NMED approval of field activities. Costs for closeout activities for WSMR-30, 31, 32, 33, 36, 57, 60, 73, 74, 79, 84 will all be addressed under WSMR-30.

# HELSTF DECON PAD & UNDERGROUND TANK SWMU 147

## SITE DESCRIPTION

WSMR-78 was a decontamination pad and underground holding tank located adjacent to the southeast corner of HELSTF Building 26131. This site began operation in 1982. The unit reportedly consisted of a 3 ft x 5 ft x 6.5 ft deep underground waste tank with an open top that was covered with a grate and a steel cover. Wastewater/debris from the decontamination pad flowed down the drain and into a sump prior to entering the tank. The pad was used occasionally for cleaning large pieces of equipment that could not be cleaned inside Building 26131.

The Phase II RFI (Sverdrup, 1994) determined that the decontamination pad underground waste tank, for which this SWMU was created, did not exist. Historical drawings documented that the underground tank was actually an aboveground tank and the only remaining unit was the sump. Results of the RFI determined that no release of contaminants had occurred at this site.

The decontamination pad waste underground tank was not identified in either of the two RFAs reported in 1988. As a consequence this site was not part of the initial HSWA Operating Permit issued September 29, 1989. In January 1996, confirmatory soil samples were collected from beneath the sump. Analysis revealed the soil beneath the tank to be non-hazardous. The sump was subsequently filled with concrete for closure in place. Drummed liquids and sludge waste were disposed off site (Dow, 1997).

A Class III Permit Modification NFA petition was submitted on January 24. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including an ecological risk assessment. This investigation will be a part of the Phase III RFI at WSMR-85.

The Phase III RFI under WSMR-85 commenced in FY03 and will investigate all HELSTF sites under one study as directed by the NMED (1996). WSMR-78 is included in this Phase III RFI. The final Phase III work plan is currently awaiting state review.

## STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Medium

**CONTAMINANTS OF CONCERN:**  
Solvents, POLs

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	199408 .....	199410
<b>RFI/CMS .....</b>	<b>199410 .....</b>	<b>200809</b>
IRA.....	199608 .....	199608

**RC DATE:** 200809

# **HELSTF DECON PAD & UNDERGROUND TANK SWMU 147**

## **CLEANUP STRATEGY**

Investigation of this site is included in the Phase III RFI for HELSTF being conducted under WSMR-85 (BAE, 2004d).

Complete a decision document under WSMR-85 to cover WSMR-52, 53, 54, 55, 78 and 83 in FY10.

Anticipate No Further Action.

All funding will be addressed under WSMR-85.

# WSMR-79

## HEAVY EQPT WASHPAD & DRAIN @ BLDG 1736

### SWMU 16

#### SITE DESCRIPTION

WSMR-79 is a heavy equipment wash pad (SWMU 16) located in the southern section of the Main Post, west of Building 1736. The unit has been active since the 1960s. The heavy-equipment vehicle maintenance shop is located west of this site. The wash pad area is a 50 ft x 40 ft concrete pad that slopes towards the center where a grate-covered drain is located. A 6 in curb rims the south end of the concrete pad. This pad is entirely edged by gravel. The drain discharges into an asphalt-lined drainage ditch located immediately to the south of the unit and runs east for approximately 545 ft.

The facility was identified in the 1988 RFA (A.T. Kearney, 1988) and included in the Phase I and Phase II RFIs (I.T. Corp., 1992 and Sverdrup, 1994 respectively). Soil and sediment sampling detected metals below applicable screening action levels. An elevated TPH concentration (above the New Mexico standard of 1,000 ppm) was attributed to the asphalt lining the drainage ditch. A soil vapor survey did not detect target VOCs. In comments to the Phase II RFI, NMED recommended removing the site from the HSWA Corrective Action Permit.

A Class III Permit Modification NFA petition was submitted on January 24, 2000. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including a background soil investigation and an ecological risk assessment. This investigation commenced in FY03 and is slated to be completed in FY06. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response. A WSMR response addressed these comments and the work plan was executed in FY05. A final RFI report is anticipated in FY06.

#### CLEANUP STRATEGY

Complete final RFI report in FY06. A petition for NFA (i.e., Response Complete) will occur following NMED approval of field activities. Costs for closeout activities for WSMR-30, 31, 32, 33, 36, 57, 60, 73, 74, 79, 84 will all be addressed under WSMR-30.

#### STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
TPH, Solvents

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	199206 .....	199212
RFI/CMS .....	199206 .....	200709

**RC DATE:** 200709

# WSMR-83 HELSTF FORMER MAR WASTE STABILIZATION POND SWMU 148

## SITE DESCRIPTION

WSMR-83 was the Multi-Function Array Radar (MAR) Waste Stabilization Pond (SWMU 148) that was used to treat sanitary waste in the 1960s. The site was an unlined surface impoundment with dimensions of approximately 110 ft x 130 ft x 7 ft. SWMU 148 was backfilled and paved in the early 1980's and is located at the south end of the current HELSTF Equipment Storage Area (SWMU 141).

No evidence of release was detected from this site during the Phase I (IT Corp., 1992) or Phase II (Sverdrup, 1994) RFI. The Phase II recommended a Class III Permit Modification.

The EPA Region VI approved a Class III Permit Modification dated 31 December 1995 for No Further Action at SWMU 141. A Class III Permit Modification NFA petition was submitted on January 24, 2000 to NMED. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2).

The state disapproved the petition in March 2002. The state requested additional investigation including an ecological risk assessment. This investigation will be a part of the Phase III RFI under WSMR-85 including any future LTM requirements. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response. WSMR is currently developing their response.

The Phase III RFI under WSMR-85 commenced in FY03 and will investigate all HELSTF sites under one study as directed by the NMED (1996). WSMR-53 is included in this Phase III RFI. The final Phase III work plan is currently awaiting state review.

## CLEANUP STRATEGY

Investigation of this site is included in the Phase III RFI for HELSTF being conducted under WSMR-85 (BAE, 2004d).

Complete a decision document under WSMR-85 to cover WSMR-52, 53, 54, 55, 78 and 83 in FY10.

Anticipate No Further Action.

All funding will be addressed under WSMR-85.

## STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
Metals

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198905 .....	199410
RFI/CMS .....	199205 .....	200809

**RC DATE:** 200809

# WSMR-84 (PAGE 1 OF 2) FORMER LC-37 PAINT DUMP SWMU 140

## SITE DESCRIPTION

WSMR-84 was a paint dump area located approximately 12 mi east of the Main Post. This site consisted of a 10 ft x 30 ft x 8 ft open trench, containing paint and solvent cans, construction debris, 55 gal drums, and wire. A berm exists on the north side of the trench to divert run-on water. The site is currently closed and the dates of usage are unknown.

SWMU 140 was not included in the initial RFA by Kearney; however, the site was investigated under the Phase I RFI (I.T. Corp., 1992) and Phase II RFI (Sverdrup, 1994). Based on results of the RFI sampling, no release of constituents hazardous to human health or the environment was released.

Unidentifiable drums and debris were sampled and analyzed prior to removal. Upon characterization of debris in December 1994, construction materials were recovered for recycling, wood material was disposed in the WSMR landfill, metal was taken to the WSMR salvage yard, and paint and solvents were shipped to an authorized incinerator. Following debris removal from the trench, six soil samples were collected from the trench floor for hazard characterization. All samples collected at the site were characterized as non-hazardous after analysis (Dow, 1996).

A Class III Permit Modification petition was submitted on January 24, 2000 to NMED. A Public Meeting was held on February 23, 2000 to solicit public comment concerning the Class III Permit Modification as part of the Final RCRA Expanded Public Participation Rule (40 CFR 270.2). The public did not provide comments on this site.

The state disapproved the petition in March 2002. The state requested additional investigation including background metals study, confirmation sampling, and ecological risk assessment. This investigation commenced in FY03 and is slated to be completed in FY06. WSMR submitted a Phase III RFI Work Plan (BAE, 2004c) dated June 2004; however, NMED submitted a Notice of Deficiency (dated 15 November 2004) including a total of 10 comments requiring a WSMR response. A WSMR response addressed these comments and the work plan was executed in FY05. A final RFI report is anticipated in FY06.

## CLEANUP STRATEGY

Complete final RFI report in FY06. A petition for NFA (i.e., Response Complete) will occur following NMED approval of field activities.

## STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Medium

**CONTAMINANTS OF CONCERN:**  
Metals, Organics, Solvents

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA .....	198805 .....	198808
CS .....	198907 .....	199210
<b>RFI/CMS .....</b>	<b>199205 .....</b>	<b>200709</b>
IRA .....	199505 .....	199602

**RC DATE:** 200709

**WSMR-84 (PAGE 2 OF 2)**  
**FORMER LC-37 PAINT DUMP**  
**SWMU 140**

**CLEANUP STRATEGY**

Costs for closeout activities for WSMR-30, 31, 32, 33, 36, 57, 60, 73, 74, 79, 84 will all be addressed under WSMR-30.

# WSMR-85 HELSTF GROUNDWATER STUDY

## SITE DESCRIPTION

WSMR-85 consists of contaminated groundwater underlying the HELSTF area. Previous investigations at the site revealed contaminants including chlorinated volatile organic compounds, hexavalent chromium, and petroleum hydrocarbons above levels established by the NMED. Multiple contaminant sources exist from IRP and non-IRP sites. The efforts at HELSTF have primarily focused on individual sources and locations of contamination (e.g. WSMR-52 Former HELSTF Landfill, WSMR-54 HELSTF Storage Chromate Spill Site, and WSMR-55 HELSTF Systemic Diesel Spill) rather than the relationships between them all.

A HELSTF conceptual site model (CSM) was developed to review and compile the available subsurface environmental information in the HELSTF area. The CSM was developed to illustrate the relationships between all of the sources of contamination, wells, and groundwater at HELSTF.

Per NMED's request, a Phase III RFI commenced in FY03 to address all HELSTF sites under one comprehensive study. The Phase III RFI includes a comprehensive data review, further data collection (groundwater sampling) and an ecological risk assessment. The work will include IRP sites WSMR-52, WSMR-53, WSMR-54, WSMR-55, WSMR-78 and WSMR-83. The Phase III RFI work plan was submitted to NMED during late 2005. WSMR is awaiting NMED's review.

## CLEANUP STRATEGY

Commence Phase III RFI fieldwork during FY06, complete report during FY06/07 and obtain NMED approval during FY07.

Conduct CMS in FY08-09.

Implement groundwater monitoring and appropriate corrective measures in FY10.

Complete a decision document to cover WSMR-52, 53, 54, 55, 78 and 83 in FY10.

## STATUS

**REGULATORY DRIVER:** RCRA  
Subtitle C

**RRSE:** Medium

**CONTAMINANTS OF CONCERN:**  
TPH, Solvents, Chromium

**MEDIA OF CONCERN:**  
Groundwater

Phases	Start	End
RFA.....	199401 .....	199410
CS.....	199502 .....	199512
<b>RFI/CMS .....</b>	<b>199601 .....</b>	<b>200909</b>
LTM.....	200910 .....	203009

**RC DATE:** 200909

# WHITE SANDS MISSILE RANGE

No Further Action Sites

## IRP No Further Action Sites Summary

AEDB-R	SWMU	Site Title	Documentation/Reason for NFA	RC Date
WSMR-01	N/A	Yonder Impact Area	Erroneous DSERTS Entry	199707
WSMR-02	50-54, 155	Red Rio Munition Disposal Area (Pits -1-5)	Active RCRA Subpart X Unit with RCRA Closure	199707
WSMR-03	41-46	Oscura Munitions Disposal Area	RCRA Subpart X unit with RCRA Closure	199707
WSMR-04	AOC	Oscura Range Impact Area	Active Impact Area	199707
WSMR-08	N/A	Pistol/Rifle Range	Active Firing Range	199707
WSMR-11	92-100	Liq Propellant Evap/Neut Pits (10)	All Required Cleanup(s) Completed	199608
WSMR-12	AOC	OB/OD Disposal Pits HTA	Permitted under RCRA Subpart X	199707
WSMR-13	AOC	Trinity Site	National Historic Landmark Monitored by White Sands Radiation Protection	199707
WSMR-15	N/A	Former Hazardous Waste Landfill	Landfill underwent RCRA Closure with EPA	199009
WSMR-17	66-78	Sewage Treatment Plant Main Post	Active Sewage Treatment Plant	199707
WSMR-18	AOC	Flower Area Burial Site	Erroneous DSERTS Entry	199707
WSMR-19	AOC	Burial Site North of Army Blockhouse	Erroneous DSERTS Entry	199707
WSMR-20	AOC	Bomblet Burial Site	Inactive UXO Site Under RCRA Subpart X	199707
WSMR-23	57-60	Tula Peak Burial Pits	Inactive UXO Site Under RCRA Subpart X	199707
WSMR-24	61	Tula Peak Burial Site Incinerator	Study Completed, No Cleanup Required	199608
WSMR-27	89	Former Acid Neut Unit @ HWSF Lding Dock	All Required Cleanup(s) Completed	199707
WSMR-29	79	STP Drying Beds (Main Post)	All Required Cleanup(s) Completed	119608
WSMR-34	104	TTF HDPE-Lined Lagoon (Removed)	All Required Cleanup(s) Completed	199707
WSMR-35	107	TTF 25,000 gal Evap Tank	RCRA Closure	199410
WSMR-37	90	HWSF Evaporation Tank	RCRA Closure	199512
WSMR-39	63	Former Main Post Landfill 1A	Study Completed, No Cleanup Required	200004
WSMR-40	64	Former Main Post Landfill 2A	Study Completed, No Cleanup Required	200008
WSMR-42	85	STP Discharge Site at Playa Lake	Active Site with New Mexico Ground Water Quality Bureau (NMGWQB) Discharge Permit	199707
WSMR-43	31-32	Former Chemical Waste Evaporation Tanks at HELSTF	Underwent RCRA Closure in 1991	199206
WSMR-44	27-30	HELSTF STP Lagoons (Ponds 1-4)	Active Units with NMGWQB Discharge Permit	199707

# IRP No Further Action Sites Summary

AEDB-R	SWMU	Site Title	Documentation/Reason for RC	RC Date
WSMR-45	146	HELSTF STP Dry Pond	Active Discharge Pond	199707
WSMR-46	149/151-2	HELSTF Septic Systems	Active Units Regulated by the New Mexico Environment Department's Construction Industries Division – Class III Modification by EPA in 1995	199707
WSMR-47	144	HELSTF LSTC Wastewater Discharge	Active Unit Regulated under NMGWQB	199707
WSMR-48	142	HELSTF Cleaning Facility Sump	RCRA Closure	199707
WSMR-49	33-34	HELSTF Holding Tanks	Active Neutralization Units Exempt from RCRA – Class III Permit Modification by EPA in 1995	199707
WSMR-50	35-36	HELSTF Ethylene Glycol Tanks	All Required Cleanup(s) Completed	199707
WSMR-56	137	Paint Shop Sump	Study Completed, No Cleanup Required	199707
WSMR-58	153	Former Vandal Burial Site	All Required Cleanup(s) Completed	199609
WSMR-59	62	Former Sewage Treatment PLT (Imhoff Tank)	Study Completed, No Cleanup Required	199707
WSMR-66	162	Stallion Range Center Former Fire Fighting Training Area	Erroneous DSERTS Entry/Not Included in the Hazardous and Solid Waste Amendment Permit	199707
WSMR-67	121-123	Stallion Asphalt Tanks	All Required Cleanup(s) Completed	199308
WSMR-68	AOC	Sewage Lagoons at Stallion Range Ctr	Active Site Regulated by the NMGWQB	199707
WSMR-69	AOC	Septic Tank/Drain Field at Rhodes Canyon	Active Unit Regulated by the NM Environment Department's Construction Industries Div	199707
WSMR-70	119-120	Landfills at Stallion Range Center	Active Site Regulated by the New Mexico Solid Waste Bureau	199707
WSMR-071	49	Former North Oscura Peak Landfill	NFA letter was received Jan 2006.	200601
WSMR-72	163	Aband Disposal Trench at New Commissary	All Required Cleanup(s) Completed	199410
WSMR-75	116-118	Rhodes Canyon Subgrade Asphalt Tanks(3)	All Required Cleanup(s) Completed	1997-07
WSMR-76	132	Sewage Lagoon/ Orogrande Camp	Active Site Regulated by the New Mexico Ground Water Quality Bureau	199707
WSMR-77	125	McAfee & Vet Clinic Incinerators	All Required Cleanup(s) Completed	199707
WSMR-80	19-20	Washpad, Drain, Oil/Water Separator at Building 1753	Active Site Ineligible for Inclusion in the IRP	199707
WSMR-81	86	Main Post Sanitary Landfill	Active Site Regulated by the New Mexico Solid Waste Bureau	199707
WSMR-82	87	Main Post Construction Landfill	Active Site Regulated by the New Mexico Solid Waste Bureau	199707

# WSMR-11 LIQUID PROPELLANT EVAPORATION/NEUTRALIZATION PITS (10) SWMUs 92-100

## SITE DESCRIPTION

WSMR-11 consists of ten earthen pits located 2 mi east of the Main Post at the Liquid Propellant Storage Area (LPSA). The LPSA became active in 1953. The pits were constructed in 1958 and provided secondary containment for specific product storage areas until they were taken out of service in approximately 1992. The unlined pits were approximately 20 ft in diameter and 10 ft deep. The pits served as secondary containment for adjacent storage areas that held Inhibited Red Fuming Nitric Acid (IRFNA), liquid propellants, monomethyl hydrazine (MMH), unsymmetrical dimethyl hydrazine (UDMH), and POLs.

In 1956, a spill of 905 gallons of IRFNA was reported. In 1975, five gallons of UDMH was reported spilled. In 1987, 12 to 15 gallons of IRFNA were spilled while filling drums from a storage tank. The spill was flushed to the containment pit, diluted, and neutralized. The RFA (A.T. Kearney, 1988) suggested a RFI be performed on the site.

Phase II RFI findings (Sverdrup, 1994) indicated high levels of TPH and low levels of solvents. A CMS was recommended for this site.

From June through September 1995, a remedial action was performed at SWMUs 92-100. The existing storage shed drains were plugged as well as the drain lines leading from the storage shed to the pits. The drain lines were sampled, characterized and properly disposed in the WSMR landfill and scrap yard.

Soil excavated during removal of the drain lines was sampled for TPH, VOCs, and SVOCs and characterized as non-hazardous. Following characterization, the excavated soil was used to backfill the trenches. The close out report detailing the remedial action at the site concluded that WSMR should apply for closure of the site (Dow, August 1996).

Following remedial action, EPA Region VI approved a Class III Permit Modification dated December 31, 1995 for SWMUs 92A, 93, and 95-100. These SWMUs were removed from the HSWA Corrective Action Module of the RCRA Part B Permit. SWMUs 92B and 94 remain on the HSWA Corrective Action Module. IRP actions have been completed at WSMR-11.

## STATUS

**RRSE:** NE

### CONTAMINANTS OF CONCERN:

IRFNA, Liquid Propellants, MMH, UDMH, POL

**MEDIA OF CONCERN:** Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
RFA.....	198805 .....	198808
CS.....	198805 .....	199408
RFI.....	199408 .....	199410
DES .....	199408 .....	199410
CMI(C) .....	199507 .....	199507

**RC DATE:** 199608

# WSMR-24 TULA PEAK BURIAL SITE INCINERATOR SWMU 61

## SITE DESCRIPTION

WSMR-24 is an inactive ordnance incinerator located approximately 2 miles north of Tula Peak. Cluster bomb units (CBU) and other small ordnance were placed in the incinerator as part of an ordnance disposal procedure. In 1995, a fence was constructed around the site to restrict access. The fence was constructed to achieve the desired objectives of protecting humans and wildlife from the potential hazards associated with the site. Specifications for the fence are included in the close-out report (Dow, August 1996).

The dates of operation of this unit are unknown. However, at the time the RFA (A.T. Kearney, 1988) was performed the unit was inactive and already heavily rusted.

The EPA Statement of Basis states, "The unit is inactive and contains partially melted cluster bomb units and military ordnance. Soil sampling results detected no waste source or release. No Further Action under the corrective action process is required. WSMR has volunteered to close the site under NMEDs Solid Waste Program."

Groundwater monitoring was conducted semi-annually between 1998 (Mevatec, March 1998; October 1998) and 2001 (Mevatec, June 2001; August 2001). Explosive compounds have not been detected in the groundwater at this site.

At the conclusion of the Phase I RFI, EPA Region VI approved a Class III Permit Modification dated 31 December 1995. This site was removed from the HSWA Corrective Action Module of the RCRA Part B Permit. No further remedial action is required.

## STATUS

**RRSE:** NE

**CONTAMINANTS OF CONCERN:**  
Munitions, Explosives

**MEDIA OF CONCERN:** Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
PA .....	198805 .....	198808
SI .....	198808 .....	198808
RI .....	199406 .....	199408

**RC DATE:** 199608

# WSMR-27 FORMER ACID NEUT UNIT @ HWSF LOADING DOCK SWMU 89

## SITE DESCRIPTION

WSMR-27 was formerly an open-topped, concrete evaporation tank located adjacent to the Hazardous Waste Storage Facility (HWSF), which is located 8 mi east of the Main Post area. Facility personnel estimated the date of construction between 1973 and 1978. Prior to 1981, the tank was used to evaporate liquid chemical wastes generated at the installation's photographic laboratories. When not being used for evaporation, the unit was occasionally used as a storage pad for damaged transformers containing PCBs.

In 1981, PCB transformers were being stored in the tank when a batch of corrosive photographic waste was added to the unit. As a result, PCBs leaked from the transformers and mixed with the corrosive photographic waste. Soil sampling around the unit indicated PCB contamination. The sludge and soils were removed, drummed, and buried in the Hazardous Waste Landfill. The remediation and cleanup was performed in 1981 by WSMR with EPA Region VI and NMED oversight. The unit was converted to a loading dock in 1981 by installing a reinforced concrete cap/seal over the structure (A.T. Kearney, 1988).

The Phase II RFI (Sverdrup, 1994) recommended that no further investigation is necessary. Future action includes submission, by WSMR, of a Petition for No Further Action to the NMED-Hazardous Waste Bureau. A Class III Permit Modification to the WSMR RCRA Permit will follow.

## STATUS

**RRSE:** NE

**CONTAMINANTS OF CONCERN:**  
PCBs, Solvents

**MEDIA OF CONCERN:** Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
RFI .....	199205 .....	199402
CMI(C) .....	199205 .....	199402

**RC DATE:** 199707

# WSMR-29 STP DRYING BEDS (MAIN POST) SWMU 79

## SITE DESCRIPTION

WSMR-29 was located in the vicinity of the STP and consisted of 11 sludge drying beds. The sludge beds were made of 2 ft concrete walls with sand bottoms. Each bed was approximately 20 ft x 50 ft. The southern end of each bed was designed with an elevated concrete drive to allow access for the loading of sludge onto trucks for transport and disposal. The sludge was deposited into the beds approximately once a month and the dried sludge cake was removed once a year for disposal. Facility representatives estimate that 3 to 4 cubic yards of sludge cake were removed yearly from each cell.

In 1978, floodwater destroyed part of the sludge beds. The debris was removed and stored in a nearby waste pile (SWMU 80). The sludge beds were then reconstructed, using the same specifications as the old sludge beds.

At the conclusion of the Phase I RFI, EPA Region VI approved a Class III Permit Modification, dated 31 December 1995, for No Further Action at this site.

## STATUS

**RRSE:** NE

**CONTAMINANTS OF CONCERN:**  
Metals

**MEDIA OF CONCERN:** Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
PA .....	198805 .....	198808
SI .....	198805 .....	198808
RI .....	199205 .....	199208
RA(C) .....	199507 .....	199508

**RC DATE:** 199608

# WSMR-34 TTF HDPE-LINED LAGOON (REMOVED) SWMU 104

## SITE DESCRIPTION

WSMR-34 is the site of a removed HDPE lined evaporation pond at the TTF, located approximately 2.5 mi east of the Main Post area. The TTF was designed to simulate extreme weather conditions by inducing a wide range of temperature and climatic variations. After completion of construction in early 1984, the facility consisted of a main test building, several USTs with ancillary piping, and a surface evaporation pond. The original refrigerant used to cool the test chamber was methylene chloride (MeCl), which was recycled using the USTs. The surface evaporation pond was used to evaporate process wastewater generated as a by-product of freezing rain tests performed in the test building. The evaporation pond, excavated into the natural sandy soil, was approximately 70 ft wide and 150 ft long (surface area approximately 10,000 ft<sup>2</sup>), and lined with a high-density polyethylene liner.

The TTF was originally designed to collect process wastewater in floor drains within the facility and discharge to the evaporation pond via underground pipes. In July 1983, prior to final construction completion, it was discovered that MeCl leaked directly to the ground surface east of the TTF building. The leakage occurred due to faulty seals in the coolant system. From January 1984 to January 1985, wastewater with MeCl was discharged to the lagoon. In January 1985, it was discovered that the HDPE liner had eroded and leaked the pond's contents to the underlying soil.

It was originally estimated that 6,400 pounds (lb) of MeCl were released into the underlying soil (GCL, 1987). A study performed by New Mexico State University in 1991 estimated the quantity of MeCl in the soil to be approximately 924 lbs (NMSU, 1991). However, additional leaks due to faulty seals in the USTs and ancillary piping released an unknown amount into the subsurface.

In 1990, WSMR, with approval from NMED, installed an impermeable cap covering soil contamination beneath the evaporation pond and surrounding area. In 1991, TTF personnel replaced MeCl with Syltherm, an environmentally "safer" heat exchange liquid, as the primary coolant at the facility. Additionally, the coolant system was re-engineered to prevent releases.

In April 1995, WSMR installed a soil vapor extraction system (IRP site WSMR-41) to remove MeCl from the subsurface. Since then, all work at the site has been conducted under IRP site number WSMR-41 including SVE operations, semi-annual groundwater monitoring and monthly cap inspections. The reader is referred to the Site Description for WSMR-41 for more information.

## STATUS

**RRSE:** NE

**CONTAMINANTS OF CONCERN:**  
MeCL, Solvents

**MEDIA OF CONCERN:** Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
RFI.....	198805 .....	198809
IRA.....	198807 .....	198809
CMI(C) .....	199205 .....	199309

**RC DATE:** 199707

# WSMR-39 FORMER MAIN POST LANDFILL 1A SWMU 63

## SITE DESCRIPTION

WSMR-39 (SWMU 63) is the suspected former landfill No. 1, supposedly located in the southeast area of the Main Post. Previous studies indicated that the landfill was located in the immediate area of Building 1678. Details were not available on the size, shape, types of waste managed, where the waste was generated, or the volumes of the waste disposed. No historical information was available on the design, construction, and operating procedures used at this unit.

In 1988, SWMU 63 was investigated under the WSMR RFA (A.T. Kearney, 1988). This report concluded that the potential for releases to soil and groundwater was unknown based on the age of the landfill and the lack of information regarding the types of waste received and the past management practices. A 1992 Phase I RFI (IT Corp., 1992) also found no evidence of contamination.

In 1994, four monitoring wells were installed and sampled around the suspected landfill as part of the Phase II RFI (Sverdrup, 1994). Analyses indicated no constituents exceeding their respective action levels. However, this report speculated that the actual site of SWMU 63 may have been southeast of Building 1678 and recommended that further studies be performed to identify its actual location.

A review of aerial photographs from 1956 and field inspections indicated that the site was most likely located approximately 330 ft south of Building 1678. To avoid confusion with the previously misidentified site, the new alleged landfill location was referred to as Landfill 1A.

An additional RFI was conducted and consisted of an archeological study, geophysical survey, and soil borings. The archeological study and the geophysical survey were completed in May 1998 and July 1998 respectively. Boring activities were conducted in 1999 at sites identified as possible trench locations containing buried waste. Through visual classification of soil samples, no buried waste was detected. From this study, it was concluded that no landfill exists and that no further action is required at this site (Mevatec, April 2000).

In a August 2, 2004 letter (Kieling, 2004), the NMED agreed with WSMR's assertion that Landfill 1A does not exist and recommended that a No Further Action petition be submitted. Therefore, future action includes submission, by WSMR, of a Petition for No Further Action to the NMED-Hazardous Waste Bureau. A Class III Permit Modification to the WSMR RCRA Permit will follow.

## STATUS

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
None

**MEDIA OF CONCERN:** None

<u>PHASES</u>	<u>Start</u>	<u>End</u>
PA .....	198805 .....	198808
RI .....	199602 .....	200004

**RC DATE:** 200004

# WSMR-40 (PAGE 1 OF 2)

## FORMER MAIN POST LANDFILL 2A

### SWMU 64

#### SITE DESCRIPTION

WSMR-40 is the suspected former Landfill No. 2 (SWMU 64) supposedly located in the southeast area of the Main Post. Previous studies indicated that the landfill was located in the immediate area of Building 1774. Details were not available on the size, shape, types of waste managed, where the waste was generated, or the volumes of the waste disposed. No historical information was available on the design, construction, and operating procedures used at this unit. This facility reportedly operated from 1948 to 1965.

In 1988, SWMU 64 was investigated as part of the WSMR RFA (A.T. Kearney). This report concluded that the potential for releases to soil and groundwater was unknown based on the age of the landfill and the lack of information regarding the types of waste received and the past management practices. The Phase I RFI (IT Corp., 1992) also found no evidence of a contamination source or release at SWMU 64.

Five monitoring wells were installed and sampled around the suspected landfill as part of the Phase II RFI (Sverdrup, 1994). Analyses indicated no constituents exceeded their respective action levels. However, this report speculated that the actual site of SWMU 64 may have been southeast of Building 1747 and recommended that further studies be performed to identify its actual location.

A review of aerial photographs from 1956 and field inspections indicated that the site was possibly located approximately 660 ft to the south of Building 1774. To avoid confusion with the previously misidentified site, the new alleged landfill location was referred to as Landfill No. 2A.

An additional RFI was conducted and consisted of an archeological study, geophysical survey, and soil borings. The archeological study and geophysical survey were completed in May 1998 and July 1998 respectively. However, a smaller potential waste disposal area (8.82 acres) was found northeast of the main landfill area, outside of the survey area. The archeological study was extended to cover the newly identified area. This was completed in December 1998.

A geophysical study was conducted in 1999 to further identify potential trenches and buried waste. Boring activities were then conducted in 1999 on the entire site in conjunction with Landfill 1A (WSMR-39). No evidence of refuse was discovered during the soil borings. From this study it was determined that no landfill exists and that no further action is required at this site (Mevatec, June 2000).

#### STATUS

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
None

**MEDIA OF CONCERN:** None

PHASES	Start	End
RFA .....	198805 .....	198808
RFI.....	199405 .....	200008

**RC DATE:** 200008

**WSMR-40 (PAGE 2 OF 2)**  
**FORMER MAIN POST LANDFILL 2A**  
**SWMU 64**

**SITE DESCRIPTION**

The NMED concurred in a July 10, 2003 NMED letter (Frischkorn, 2004) that the Former Main Post Landfill 2A does not exist, and requires no further investigations. However, the state did request additional investigation of monitoring well T-21 which was sampled during the Phase II RFI. During this sampling event, chromium and lead were detected above NMWQCC standards. Confirmation sampling took place in August 2004. A letter report to the NMED (BAE, 2004e) stated that no lead or chromium were detected and recommended no further action at well T-21.

In a December 1, 2004 letter, the NMED concurred with the August letter report and concluded that WSMR had completed the required investigation pertaining to Landfill 2A. Therefore, future action includes submission, by WSMR, of a Petition for No Further Action to the NMED-Hazardous Waste Bureau. A Class III Permit Modification to the WSMR RCRA Permit will follow.

# WSMR-50

## HELSTF ETHYLENE GLYCOL TANKS

### SWMU 35 AND 36

#### SITE DESCRIPTION

WSMR-50 consisted of two Ethylene Glycol Tanks located at HELSTF. These steel tanks were located immediately west of the Former Chemical Waste Evaporation Tanks at HELSTF and were approximately 5 ft long x 4 ft tall x 4 ft wide. The tanks were used as emergency storage containers for ethylene glycol in the event the compressor system at HELSTF failed. An emergency release occurred once, in 1988. The ethylene glycol was disposed through the Holloman Air Force Base Defense Reutilization Marketing Organization (DRMO). There were no other reported releases of ethylene glycol to the tanks. The RFA (A.T. Kearney, 1988) suggested NFA.

The tanks were removed in 1989.

#### STATUS

RRSE: NE

**CONTAMINANTS OF CONCERN:**  
Ethylene Glycol

**MEDIA OF CONCERN:** Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
RFA.....	198805 .....	198808
CS.....	198805 .....	198809
RFI.....	198901 .....	198902
CMI(C) .....	198902 .....	198905

**RC DATE:** 199707

# WSMR-56

## PAINT SHOP SUMP

### SWMU 137

#### SITE DESCRIPTION

WSMR-56 is a paint shop sump located at the north end of Building 1742 on Main Post. This site has been active since 1968. Wastewater generated from the paint spray booth located inside Building 1742 is discharged to the 3 ft x 3 ft concrete sump. The sump receives wastewater generated by the paint spray booth. Separation of sludge, paint, and other debris is accomplished by gravity. The effluent is piped to the STP (SWMUs 66-78 and 85). There is no history of a release from this unit.

At the conclusion of the Phase I RFI, EPA Region VI approved a Class III Permit Modification dated 31 December 1995. This site was removed from the HSWA Corrective Action Module of the RCRA Part B Permit.

#### STATUS

RRSE: NE

**CONTAMINANTS OF CONCERN:**  
Metals, Solvents

**MEDIA OF CONCERN:**  
Soil, Groundwater

<b>PHASES</b>	<b>Start</b>	<b>End</b>
RFA.....	198805 .....	198808
RFI.....	199206 .....	199412

**RC DATE:** 199707

# WSMR-58 FORMER VANDAL BURIAL SITE SWMU 153

## SITE DESCRIPTION

WSMR-58, the Vandal Burial Site, was located at the Hazardous Test Area (HTA) approximately 7 mi north of the Main Post. It is believed the unit was activated in the mid-1950s for the burial of missile and rocket parts. The date of the termination of operations for this unit is unknown.

In February 1991, Geonics EM-31, PPM-500, and Geonics EM-34 geophysical instruments were used in order to delineate the burial site.

During December 1994, rocket and missile components including overlying soil were excavated and hauled to a visqueen-lined stockpile area. Stockpiled soil was excavated and determined to be non-hazardous. From February to March 1995 the stockpiled soil was taken to the WSMR landfill to be used as cover. Suspected ordnance and missile components were turned over to the WSMR Explosive Ordnance Disposal (EOD) unit for characterization. Metal components cleared by EOD and radiation control were turned into the scrap metal yard on WSMR. Six confirmation soil samples were taken on 23 February 1995 and determined to be non-hazardous after testing. The closure report concluded that remedial activities at SWMU 153 have been completed and that WSMR should apply for closure of the site (Dow, 1996).

At the conclusion of the Phase I RFI (IT Corp., 1992), EPA Region VI approved a Class III Permit Modification dated 31 December 1995. This site was removed from the HSWA Corrective Action Module of the RCRA Part B Permit.

## STATUS

**RRSE:** NE

**CONTAMINANTS OF CONCERN:**  
Explosives, Munitions

**MEDIA OF CONCERN:**  
Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
PA .....	198805 .....	198808
SI .....	198805 .....	198808
RI .....	199205 .....	199307
RA(C) .....	199507 .....	199507

**RC DATE:** 199609

# WSMR-59 FORMER SEWAGE TREATMENT PLANT (IMHOFF TANK) SWMU 62

## SITE DESCRIPTION

WSMR-59 consisted of a former sanitary wastewater treatment plant (IMHOFF Tank) located near the present horse stables (on the eastern portion of Main Post). The start up date is unknown, but may have been concurrent with the initial post construction in the early 1940's. Operations were terminated in 1958 and the area was re-graded.

A Phase I RFI (IT Corp., 1992) was performed to determine whether the Imhoff tank was still in place and whether a release had occurred. In March 1991, total magnetic field, ground conductivity, and in-phase component geophysical survey methods were used to tentatively locate the tank. All three methods exhibited highly anomalous values in the eastern portion of the survey area. This anomaly is roughly circular with a radius of approximately 50 ft. Due to the magnitude of anomalous readings on all three data sets, this area is suspected to be the location of the Imhoff Tank. Soil samples were collected in the vicinity of the anomaly and the analytical results did not indicate any release from this site.

The U.S. EPA Region VI approved a Class III Permit Modification dated 31 December 1995 to remove the site from the HSWA corrective action module of the RCRA Part B Permit.

## STATUS

**RRSE:** NE

**CONTAMINANTS OF CONCERN:**  
Metals

**MEDIA OF CONCERN:**  
Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
PA .....	198805 .....	198808
SI .....	198805 .....	198808
RI .....	199206 .....	199412

**RC DATE:** 199707

# WSMR-67 STALLION ASPHALT TANKS SWMUS 121-123

## SITE DESCRIPTION

WSMR-67 consisted of three inactive steel tanks located southwest of the Stallion Gate security checkpoint. The asphalt tanks were not buried, but were placed on the side of a terraced hill with the soil on the north side of the tanks extending approximately halfway up the tank sides. No piping or vent lines were associated with the tanks.

Approximately 5,550 gallons of product (asphalt primer solution) was removed from tank 3 on 26 April 1993 and transported for recycling to Koch Materials Company located in Albuquerque, New Mexico. Approximately one foot of solidified asphalt-like material that was floating on the primer could not be pumped and was left in the tank, which was disposed in the Stallion Range Center Landfill (ASI, 1993).

Approximately 8,470 gallons of product (asphalt emulsion) in tanks 1 and 2 were removed on 28 June 1993 and transported for recycling to Koch Materials Company. The tanks were transported for recycling to Tom Black's Enterprises in Dona Ana, New Mexico (ASI, 1993).

EPA Region VI approved a Class III Permit Modification dated 31 December 1995 indicating No Further Action at SWMUs 121-123. This site was removed from the HSWA Corrective Action Module of the RCRA Part B Permit.

## STATUS

**RRSE:** NE

**CONTAMINANTS OF CONCERN:**  
TPH, Metals

**MEDIA OF CONCERN:** Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
RFI.....	199305 .....	199307
CMI(C) .....	199307 .....	199307

**RC DATE:** 199308

# WSMR-71 FORMER NORTH OSCURA PEAK LANDFILL SWMU 47-49

## SITE DESCRIPTION

WSMR-71 consists of three landfill cells located in the Oscura Mountains in the northern section of WSMR. The start up date for the landfill is unknown. A small open trench (SWMU 47) was oriented approximately east-west with approximate dimensions of 40 ft x 50 ft x 5 ft. This trench was reportedly used to dispose septic waste but wire and various waste materials were visible. Another open trench (SWMU 48) was above the surrounding grade with little vegetation and disturbed soil. The trench was oriented north-south and its dimensions were approximately 120 ft x 5 ft x 6 ft. Material visible in the trench included: glass and plastic bottles, wiring, wood, and miscellaneous waste. A mound of dirt approximately 10 ft high was situated at the north end of this trench.

The third trench (SWMU 49) measures approximately 100 ft x 8 ft x 6 ft and was covered with soil. Investigations to include drilling and sampling of the trench were completed. Waste identified included wood, wire, plastic, and metal debris. Soil and waste analysis determined that both are non-hazardous and within Federal Land Disposal Restrictions.

Although the North Oscura Peak (NOP) Landfill was identified during the 1988 RFA (A.T. Kearney, 1988), SWMUs 47-49 were not included in the Phase I and Phase II RFIs. However, an investigation of the SWMUs was conducted in 1997 (including information discussed above). Twelve soil borings were taken at the former landfill to characterize the nature and extent of the waste. The results of the investigation are included in the CMI work plan (Mevatec, 1999). The work plan was submitted to NMED on 16 August 1999 and proposed corrective action at the SWMUs to include excavating the waste materials for disposal at an approved, offsite, solid waste disposal facility. Laboratory analyses of soil samples taken following waste excavation would determine whether further corrective action was necessary.

A public meeting was held on 23 February 2000 to solicit public comment concerning the proposed remedial action for this site. The public did not comment on this site.

Voluntary corrective measures (VCM) began at this site in December 2001, but were suspended after the discovery of unexploded ordnance in the landfill. The ordnance was confirmed inert by Explosive Ordnance Disposal (EOD). A review of Federal and State regulations, as well as Department of Army policies as they pertain to inert ordnance was subsequently completed. The findings of the review were included in a letter report dated 11 January 2002 and provide recommendations for completing the project. The recommendations include screening the excavated material for ordnance and other prohibited material prior to transportation to the permitted landfill.

## STATUS

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
Metals, Organics

**MEDIA OF CONCERN:** Soil

Phases	Start	End
RFA.....	198805 .....	198808
CS.....	198805 .....	198808
RFI.....	199105 .....	199801
DES .....	199903 .....	199908
CMI(C) .....	200111 .....	200609

**RC DATE:** 200609

# **WSMR-71 FORMER NORTH OSCURA PEAK LANDFILL SWMU 47-49**

Corrective measures were completed in early 2002. All buried debris was removed from the landfill and transported offsite for proper disposal. It was recommended that no further action was required at this site. A VCM report was submitted to the state in 2004 (BAE, 2004b).

Completed a site decision document, September 2006.

No further action letter received Jan 2006.

# WSMR-72 ABAND DISPOSAL TRENCH AT NEW COMMISSARY SWMU 163

## SITE DESCRIPTION

WSMR-72 was an abandoned landfill discovered during the construction of the new Main Post Commissary in 1994. The dates of operation are estimated to have been between 1946 and 1952.

The debris from the landfill was excavated and placed in 82 roll-off bins and sampled. Seven of the bins were determined to contain high levels of lead and were sent to a hazardous waste landfill. The debris from the other 75 bins was disposed in the Main Post Landfill. In addition, soil samples were collected from the sidewall and base of the excavated trench and split with NMED personnel. Analytical results indicated no constituents present above Subpart S action limits (ASI, 1994).

WSMR will determine if a Class III Permit Modification to remove this site from the HSWA Corrective Action Module of the RCRA Part B Permit is necessary, if so, a modification will be made.

## STATUS

**RRSE:** NE

**CONTAMINANTS OF CONCERN:**  
Metals

**MEDIA OF CONCERN:**  
Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
RFA .....	199409 .....	199410
CS .....	199410 .....	199410
RFI.....	199410 .....	199410
CMI(C) .....	199410 .....	199410

**RC DATE:** 199410

# WSMR-75

## RHODES CANYON SUBGRADE ASPHALT TANKS(3)

### SWMUS 116-118

#### SITE DESCRIPTION

WSMR-75 consisted of three (3) steel tanks located southeast of the Rhodes Canyon Landfill (WSMR-14) on Range Road 6. The dates of operation were not available from facility personnel or from file material. However, the tanks appeared to be approximately 15 to 20 years old indicating the tanks were installed during the 1975-1980 timeframe. The tanks were partially below grade with the center tank slightly exposed above the surface. The visible portion of the other tanks appeared to be in good condition. The estimated capacity of the tanks was approximately 2,500 gal each. The tanks and surrounding soil were removed in 1994 (ASI, 1994).

WSMR will submit a Class III Permit Modification to remove this site from the HSWA Corrective Action Module of the RCRA Part B Permit.

#### STATUS

**RRSE:** NE

**CONTAMINANTS OF CONCERN:**  
POL

**MEDIA OF CONCERN:** Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
RFA.....	198805 .....	198808
CS.....	199005 .....	199209
RFI.....	199205 .....	199210
CMI(C) .....	199305 .....	199306

**RC DATE:** 199707

# WSMR-77 MCAFFEE & VET CLINIC INCINERATORS SWMU 125

## SITE DESCRIPTION

WSMR-77 was a Stamco gas-fired incinerator that was formerly used to destroy clinical wastes generated at the Veterinary Clinic. The exact start-up date is not known, however, the unit was deactivated in 1986. The Vet Clinic was located in Building T-1834 on the WSMR Main Post. The overall size of the unit was approximately 3 ft x 5 ft x 2 ft mounted on a 6-in concrete slab. Waste is now collected by a contractor and disposed off-range.

The RFA (A.T. Kearney, 1988) found no indication that hazardous wastes were managed and recommended no further action at the site. The incinerator was removed after deactivation in 1986.

WSMR will submit a Class III Permit Modification to remove this site from the HSWA Corrective Action Module of the RCRA Part B Permit.

## STATUS

**RRSE:** NE

**CONTAMINANTS OF CONCERN:**  
None

**MEDIA OF CONCERN:** None

<b>PHASES</b>	<b>Start</b>	<b>End</b>
PA .....	198805 .....	198808
SI .....	198805 .....	198808
RI .....	199102 .....	199108
RA(C) .....	199102 .....	199108

**RC DATE:** 199707

## Initiation of IRP: 1988

### 1988

RFA (i.e., PA) INITIATION

(also considered the CERCLA "Preliminary Assessment" Phase), MAY

RFA (i.e., PA) COMPLETION, AUG

### 1989 - 1993

RCRA PART B PERMIT with HSWA Module, SEP 1989

RFI/CMI(C) WSMR-50, HELSTF Ethylene Glycol Tanks, 1989

CMI(C) WSMR-15, Former Hazardous Waste Landfill, SEP 1990

IRA WSMR-74, Former WST Oil Tanks/Sump @ Bldg 1778, MAR 1990

RA(C) WSMR-77, McAfee and Veterinary Clinic Incinerator, AUG 1991

RFI PHASE I (INCLUDED 80 SWMUs), DEC 1992

FRA WSMR-75, Rhodes Canyon Subgrade Asphalt Tanks (3), JUNE 1993

FRA WSMR-67, Stallion Asphalt Tanks, JULY 1993

CMI(C) WSMR-34, TTF HDPE-Lined Lagoon (Removed), SEP 1993

### 1994

FRA WSMR-27, Former Acid Neut. Unit @ HWSF Loading Dock, FEB 1994

RFI WSMR-55, HELSTF Systemic Diesel Spill, AUG 1994

RFI PHASE II (INCLUDED 52 SWMUs), SEP 1994

IRM: WSMR-41, TTF Methylene Chloride Spill Area/Vap Ex., OCT 1994

RFI WSMR-35, TTF 25,000 Gallon Evap Tank, OCT 1994

RFI/CMI(C) WSMR-72, Abandoned Disposal Trench and New Commissary, OCT 1994

RFI WSMR-11, Liquid Propellant Evap/Neut. Pits (10), OCT 1994

RFI WSMR-24, Tula Peak Burial Site Incinerator, AUG 1994

### 1995

RFI/DES WSMR-41, TTF Methylene Chloride Spill Area/Vap Ex., MAY 1995

RI/FS, RA(C) WSMR-23, Tula Peak Burial Pits, AUG 1995

RFI WSMR-37, HWSF Evaporation Tank, DEC 1995

IRA WSMR-30, STP Sludge Waste Pile (Main Post), AUG 1995

CMI(C) WSMR-11, Liquid Propellant Evap/Neut. Pits (10), JUL 1995

IRA WSMR-57, Former Golf Course Pesticide Storage Shed, AUG 1995

FRA WSMR-58, Former Vandal Burial Site, JUL 1995

RA(C) WSMR-29, STP Drying Beds (Main Post), JUL 1995

### 1996

RA(C) WSMR-20, Bomblet Burial Site, AUG 1996

IRA WSMR-84, Former LC-37 Paint Dump, FEB 1996

IRA WSMR-31, Main Post FFTA & Pit, AUG 1996

IRA WSMR-32, Main Post Former FFTA Waste Pile, AUG 1996

IRA WSMR-36, Former Waste/Oil Tank & Sump East Bldg 1794, AUG 1996

RFI WSMR-12, OB/OD Disposal Pits Haz Test Area, AUG 1996

IRA WSMR-53, HELSTF Test Cell 4 Lagoon, JUL 1996

IRA WSMR-78, HELSTF Decon Pad and Underground Tank, AUG 1996

## **Past Phase Completion Milestones (continued)**

### **1996 (continued)**

IRA WSMR-84, Former LC-37 Paint Dump, FEB 1996

### **1997**

IRA WSMR-33, Used Battery Accum Areas (Main Post), AUG 1997

### **1998**

RFI WSMR-09, Nuc Effects Reactor Facility (Bldg 21235)

IRA WSMR-54, HELSTF Chromate Spill Site, DEC 1998

RFI WSMR-71, North Oscura Peak Landfill, JAN 1998

### **2000**

RFI WSMR-39, Former Main Post Landfill 1A, APR 2000

RFI WSMR-40, Former Main Post Landfill 1A, AUG 2000

### **2001**

CMI(C) WSMR-09, NUC Effects Reactor Facility (Bldg 21235) MAY 2001

### **2003**

RFI WSMR-14, Former Rhodes Canyon Landfills, OCT 2003

### **2004**

CMI(C) WSMR-14, Former Rhodes Canyon Landfills, SEP 2004

RFI/CMS WSMR-05, Former Oscura Range Center Landfill, SEP 2004

### **2005**

Ph III RFI WSMR-30, STP Sludge Waste Pile (Main Post), MAR 2005  
 WSMR-31, Main Post FFTA & Pit, MAR 2005  
 WSMR-32, Main Post Former FFTA Waste Pile, MAR 2005  
 WSMR-33, Used Battery Accum Areas (Main Post), MAR 2005  
 WSMR-36, Former Waste/Oil Tank & Sump East Bldg 1794, MAR 2005  
 WSMR-57, Former Golf Course Pesticide Storage Shed, MAR 2005  
 WSMR-60, Wash Rack & Drain/Sump East of Bldg 1778, MAR 2005  
 WSMR-73, Waste Underground Injection Pipe, MAR 2005  
 WSMR-74, Former Waste Oil Tank/Sump @ Bldg 1778, MAR 2005  
 WSMR-79, Heavy Eqpt Washpad/Drain @ Bldg 1736, MAR 2005  
 WSMR-84, MAR 2005, Former LC-37 Paint Dump, MAR 2005  
 RA WSMR-14, Rhodes Canyon Landfills, DEC 2005

**Projected ROD/DD Approval Dates:** 2009

**Projected Construction Completion Date of IRP:** 2011

**Schedule for Next Five Year Review:** N/A

**Estimated Completion Date of IRP (including LTM phase):** Indefinite

# WHITE SANDS MISSILE RANGE IRP SCHEDULE

(Based on current funding constraints)

AEDB-R#	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
WSMR-14	LTM									203509
WSMR-41	CMI(O)									204009
WSMR-52	RFI/CMS									
WSMR-54	RFI/CMS									
	DES									
	CMI(C)									
	CMI(O)									204009
WSMR-55	IRA									
	DES									
	CMI(C)									
	CMI(O)									202109
WSMR-61	DES									
	CMI(C)									
	LTM									203409
WSMR-62	RFI/CMS									
	CMI(C)									
	CMI(O)									
WSMR-85	RFI/CMS									
	LTM									203009

## Prior Years Funds

Funding up to FY04: \$5,917K

Year	Site Information	Expenditures	FY Total
<b>FY05</b>	DES WSMR-05	66K	
	LTM WSMR-14	57K	
	CMI(O) WSMR-41	250K	
	RFI WSMR-52	56K	
	RFI WSMR-54	97K	
	IRA WSMR-55	184K	
	RFI WSMR-61	43K	
	CMI(C) WSMR-71	32K	
	RFI WSMR-85	142K	
			<b>\$927K</b>

**Total Prior Year Funds: \$6,844K**

## Current Year Funds

Year	Site Information	Expenditures	FY Total
<b>FY 06</b>	CMI(C) WSMR-05	440K	
	CMI(C) WSMR-09	20K	
	LTM WSMR-14	60K	
	LTM WSMR-30	33K	
	CMI(O) WSMR-41	106K	
	RI WSMR-52	216K	
	RI WSMR-54	212K	
	IRA WSMR-55	193K	
	RI WSMR-61	512K	
	RI WSMR-62	184K	
	RI WSMR-85	611K	
			<b>\$2,587K</b>

**Total Future Requirements: \$35,775K**

**Total IR Program Cost (from inception to completion of the IRP): \$45,206K**

# White Sands Missile Range

## Military Munitions Response Program

**Total AEDB-R MMRP Sites / AEDB-R sites with Response Complete:** 6/0

**AEDB-R Site Types**

6 Firing Ranges

**Most Widespread Contaminants of Concern:** MC, MEC

**Media of Concern:** Soil, Groundwater

**Completed REM/IRA/RA:**

None

**Total MMRP Funding**

Prior years (up to FY05):	\$	0
Current Year (FY06):	\$	300,000
Future Requirements (FY07+):	\$33,317,000	
Total:	\$33,617,000	

**Duration of MMRP**

Year of MMRP inception: 2002

Year of MMRP RC: 2017

Year of MMRP Completion Including LTM: 2047

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# MMRP Contamination Assessment

## ***MMRP Contamination Assessment Overview***

The Military Munitions Response Program (MMRP) was established in 2001 to manage the environmental, health and safety issues presented by UXO, discarded military munitions, and munitions constituents. The MMRP is an element of the Defense Environmental Restoration Program (DERP), under which the Secretary of Defense carries out environmental restoration resulting from historical activities. The DERP, through the Installation Restoration Program (IRP), had historically focused on cleaning up sites contaminated with hazardous components, including explosives, but generally has not addressed either UXO or challenges presented by sites containing discarded military munitions and munitions constituents.

The Department of Defense (DoD) established the Military Munitions Response Program to reflect the statutory program goals established for the DERP, to enhance understanding of the nature of munitions response sites, and to manage response activities more effectively. Since the DERP is intended to address environmental problems remaining from past practices, the MMRP does not cover munitions responses for areas that operated after fiscal year 2002.

The Army has completed a comprehensive inventory of its non-operational training ranges and defense sites with UXO, discarded military munitions or munitions constituent contamination that will provide critical environmental data and help determine the eligibility of training sites for the MMRP. Information pertaining to WSMR is contained in the Final Closed, Transferring and Transferred (CTT) Inventory Report dated November 2002. In this report, six WSMR sites are identified and described; four sites within and two sites outside the current WSMR boundaries. The Final CTT Inventory Report serves as WSMR's MMRP Preliminary Assessment (PA) per a April 29, 2004 ACSIM memorandum.

As of FY05, the state regulatory agency, i.e., the New Mexico Environment Department, has had minimal involvement in the WSMR MMRP. Greater involvement is expected in future years. At this time, no progress beyond the initial PA (i.e., Final CTT Range Inventory) has been attained. Potential groundwater and soil contamination are suspected at each of the six WSMR MMRP sites. At this time, site maps have not been completed for the sites.

## ***MMRP Cleanup Exit Strategy***

Of the six MMRP sites at WSMR, only two sites (WSMR-001-R-01 and WSMR-002-R-01) are expected to require institutional controls, however, they are expected to be moved to the FUDS program. The remaining 4 sites are expected to require waste removal (soil/debris), these potential waste removals are not expected to occur until FY16 or later.

### **2004**

Final CTT Inventory Report, Apr 2004

# WHITE SANDS MISSILE RANGE

Military Munitions Response Program  
Site Descriptions

# WSMR-001-R-01

## ATHENA BOOSTER DROP ZONE 1

### SITE DESCRIPTION

This is a transferred range, owned primarily by federal agencies such as the National Park Service and the Bureau of Land Management (BLM), comprising 274,400 acres in southeastern Utah in the area of Canyonlands National Park and the Manti-La Sal mountains. Other landowners within this range include state and private owners. Test missile boosters from Athena launches were dropped into this area between approximately 1963 and 1971; munitions that may be present include propellants and secondary explosives. This land is now primarily recreational land within the BLM and National Park Service. Interviewees stated that most of the boosters dropped in this area would have been retrieved, but there have been no known investigations and/or responses in this area.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 2 – Serious Risk

**CONTAMINANTS OF CONCERN:**  
UXO

**MEDIA OF CONCERN:** Soil,  
Groundwater

Phases	Start	End
PA .....	200205 .....	200305
SI .....	201509 .....	201610
RA(C) .....	201611 .....	201710

**RC DATE:** 201710

**This site has been recommended for FUDS, FDE Task 1.**

### CLEANUP STRATEGY

The SI will be completed to determine if further action is necessary. Future funding requirements are captured; however, AEC is coordinating a transition of the future requirements and responsibilities to the FUDS MMRP program.

# WSMR-002-R-01

## ATHENA BOOSTER DROP ZONE 2

### SITE DESCRIPTION

This is a transferred range, owned primarily by federal agencies such as the National Forest Service, comprising 743,981 acres in west-central New Mexico in the area of the Magdalena Mountains and Cibola National Forest north of Datil, New Mexico. Other landowners within this range include tribal, state, and private owners. This land is mostly undeveloped, although there are a few private residences and ranches in the area. Test missile boosters from Athena launches were dropped into this area between approximately 1963 and 1971; possible munitions in the area include propellants and secondary explosives. Interviewees stated that most of the boosters dropped in this area would have been retrieved, but there have been no known investigations and/or responses in this area. **This site has been recommended for FUDS, FDE Task 2.**

### STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 2 – Serious Risk

**CONTAMINANTS OF CONCERN:**  
UXO

**MEDIA OF CONCERN:** Soil,  
Groundwater

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	200205 .....	200305
SI.....	201509 .....	201610
RA(C) .....	201611 .....	201709

**RC DATE:** 201709

### CLEANUP STRATEGY

The SI will be completed to determine if further action is necessary. Future funding requirements are captured; however, AEC is coordinating a transition of the future requirements and responsibilities to the FUDS MMRP program.

# WSMR-003-R-01

## ALAMOGORDO BOMBING RANGE

### SITE DESCRIPTION

This is a closed range, still owned by the U.S. Army, comprising 772 acres in an auxiliary cantonment area in the northern portion of the installation, 115 miles north of the main installation cantonment area. Bombs were dropped by practicing pilots at this range from approximately 1942 to 1945. There have been no known UXO responses in this area.

### CLEANUP STRATEGY

The SI will be completed to determine if further action is necessary funded under WSMR-005-R-01 and WSMR-006-R-01.

For MC, assume remedial investigation, installation of groundwater monitoring well, FS, remedial design for a removal action, excavation, off-site transportation and disposal.

For MEC, assume site characterization, removal action, institutional controls, and groundwater monitoring.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 2 – Serious Risk

**CONTAMINANTS OF CONCERN:**  
UXO

**MEDIA OF CONCERN:** Soil,  
Groundwater

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA .....	200205 .....	200305
RI/FS.....	201010 .....	201109
RD.....	201510 .....	201609
RA(C) .....	201610 .....	201709
LTM.....	201710 .....	204709

**RC DATE:** 201709

# WSMR-004-R-01 SEWAGE LAGOON

## SITE DESCRIPTION

This is a closed range, still owned by the US. Army, comprising 166 acres in the extreme southern portion of the installation where installation sewage lagoons now exist. This area was used as an artillery impact area for 3-inch rockets from Fort Bliss' Camp Beasley between approximately 1942 and 1944. There have been no known UXO responses in this area.

## CLEANUP STRATEGY

The SI will be completed to determine if further action is necessary (funded under WSMR-005-R-01 and WSMR-006-R-01).

For MC, assume remedial investigation, installation of groundwater monitoring well, FS, remedial design for a removal action, excavation, of-site transportation and disposal.

For MEC, assume site characterization, removal action, institutional controls, and groundwater monitoring.

## STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 2 – Serious Risk

**CONTAMINANTS OF CONCERN:**  
UXO

**MEDIA OF CONCERN:** Soil,  
Groundwater

Phases	Start	End
PA .....	200205 .....	200305
RI/FS .....	201010 .....	201109
RD.....	201510 .....	201609
RA(C) .....	201610 .....	201709
LTM.....	201710 .....	204709

**RC DATE:** 201709

# WSMR-005-R-01 CONDRON FIELD

## SITE DESCRIPTION

This is a closed range, still owned by the U.S. Army, comprising 480 acres in the extreme southern portion of the installation where an airfield now exists. This area was used as an artillery impact area for 3-inch rockets from Fort Bliss' Camp Beasley between approximately 1942 and 1944, and as a mobile combat range utilizing small arms in 1944. The area is now used as an airfield for drones that serve as missile targets. There have been no known UXO responses in this area.

## CLEANUP STRATEGY

The SI will be completed to determine if further action is necessary.

For MC, assume remedial investigation, installation of groundwater monitoring well, FS, remedial design for a removal action, excavation, of-site transportation and disposal.

For MEC, assume site characterization, removal action, institutional controls, and groundwater monitoring.

## STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 2 – Serious Risk

**CONTAMINANTS OF CONCERN:**  
UXO

**MEDIA OF CONCERN:** Soil,  
Groundwater

Phases	Start	End
PA .....	200205 .....	200305
SI .....	200601 .....	200712
RI/FS.....	201110 .....	201209
RD.....	201510 .....	201609
RA(C) .....	201610 .....	201709
LTM.....	201710 .....	204709

**RC DATE:** 201709

# WSMR-006-R-01 MAIN CANTONMENT AREA

## SITE DESCRIPTION

This is a closed range, still owned by the U.S. Army, comprising 1,528 acres in the southern portion of the installation where the main installation cantonment area now exists. The cantonment area consists primarily of office buildings, maintenance facilities.

## CLEANUP STRATEGY

The SI will be completed to determine if further action is necessary.

For MC, assume remedial investigation, installation of groundwater monitoring well, FS, remedial design for a removal action, excavation, of-site transportation and disposal.

For MEC, assume site characterization, removal action, institutional controls, and groundwater monitoring.

## STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 2 – Serious Risk

**CONTAMINANTS OF CONCERN:**  
UXO

**MEDIA OF CONCERN:** Soil,  
Groundwater

Phases	Start	End
PA .....	200205 .....	200305
SI .....	200601 .....	200712
RI .....	201110 .....	201209
RD .....	201510 .....	201609
RA(C) .....	201610 .....	201709
LTM .....	201710 .....	204709

**RC DATE:** 201709

***Initiation of MMRP:*** 2002

***Past Phase Completion Milestones***

**2003**

- PA (CTT Range Inventory), May

***Projected ROD/DD Approval Dates:*** Unknown

***Projected Construction Completion:*** 2017

***Schedule for Five Year Reviews:*** NA

***Estimated Completion Date of MMRP including LTM:*** 2047

# White Sands Missile Range MMRP Schedule

(based on current funding constraints)

AEDB-R#	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
WSMR-001-R-01	SI									201610
	RA(C)									201710
WSMR-002-R-01	SI									201610
	RA(C)									201710
WSMR-003-R-01	RIFS									
	RD									201609
	RA(C)									201709
	LTM									204709
WSMR-004-R-01	RIFS									
	RD									201609
	RA(C)									201709
	LTM									204709
WSMR-005-R-01	SI									
	RIFS									
	RD									201609
	RA(C)									201709
	LTM									204709
WSMR-006-R-01	SI									
	RIFS									
	RD									201609
	RA(C)									201709
	LTM									204709

***Prior Years Funds*****Funding up to FY04: \$0K****FY05 Prior Year Funds**

Site Information	Expenditures	FY Total
<b>Total Prior Year Funds: \$0</b>	<b>\$0</b>	<b>\$0</b>

***Current Year Funds***

Site Information	Expenditures	FY Total
SI	\$300,000	<b>\$300,000</b>
<b>Total Funding FY06: \$300,000</b>		

***Total Future Requirements: \$33,317K******Total MMR Program Cost (from inception to completion of the IRP): \$33,617,000***

### **RESTORATION ADVISORY BOARD (RAB)**

#### **A. Status of Community Involvement**

WSMR is located on land contained within the borders of five New Mexico Counties: Dona Ana (population 135,000); Sierra (population 9,900); Socorro (population 14,800); Lincoln (population 12,200); and Otero (population 51,900). In 1998, a public relations program was initiated by WSMR for the surrounding communities and will continue through completion of the IRP. WSMR solicited for public interest in establishing a RAB. After efforts were completed, the Installation Commander determined that there was not enough public interest to establish a RAB. Community interest will be re-evaluated in FY05 per the DODs DERP Guidance.

#### **B. Determining Interest In Establishing A RAB**

##### **1. Efforts Taken To Determine Interest**

In early Spring of 1998, WSMR solicited for interest in establishing a RAB to enhance public involvement in the on-going environmental restoration process. Advertisements were placed in the local WSMR paper, the Missile Ranger, on February 13, 1998. Solicitations were also sent to those individuals and entities on the facility mailing list. Eighteen responses were received out of one hundred twenty-nine solicitations.

On 15 April 1998, a second mailing took place to those eighteen persons and entities that responded to the February mailing. A total of eight responses were received from the second mailing. Only four of these responses requested the establishment of an actual RAB, or volunteered to serve on the RAB, should one be established, as Board members.

In FY06, WSMR plans to solicit for interest in establishing a RAB (a biennial requirement).

##### **2. Follow-up Procedures**

WSMR provides the public with opportunities for environmental restoration involvement by providing the following:

- a) Periodic newsletters discussing current restoration activities and providing plans and soliciting input for activities planned during the future year,
- b) Invitations to tour environmental restoration sites; and,
- c) Open access to the restoration library located in Building 163 on the Main Post
- d) Annual publication of the Installation Action Plan

#### **C. Interest in the Technical Assistance for Public Participation Program: N/A**